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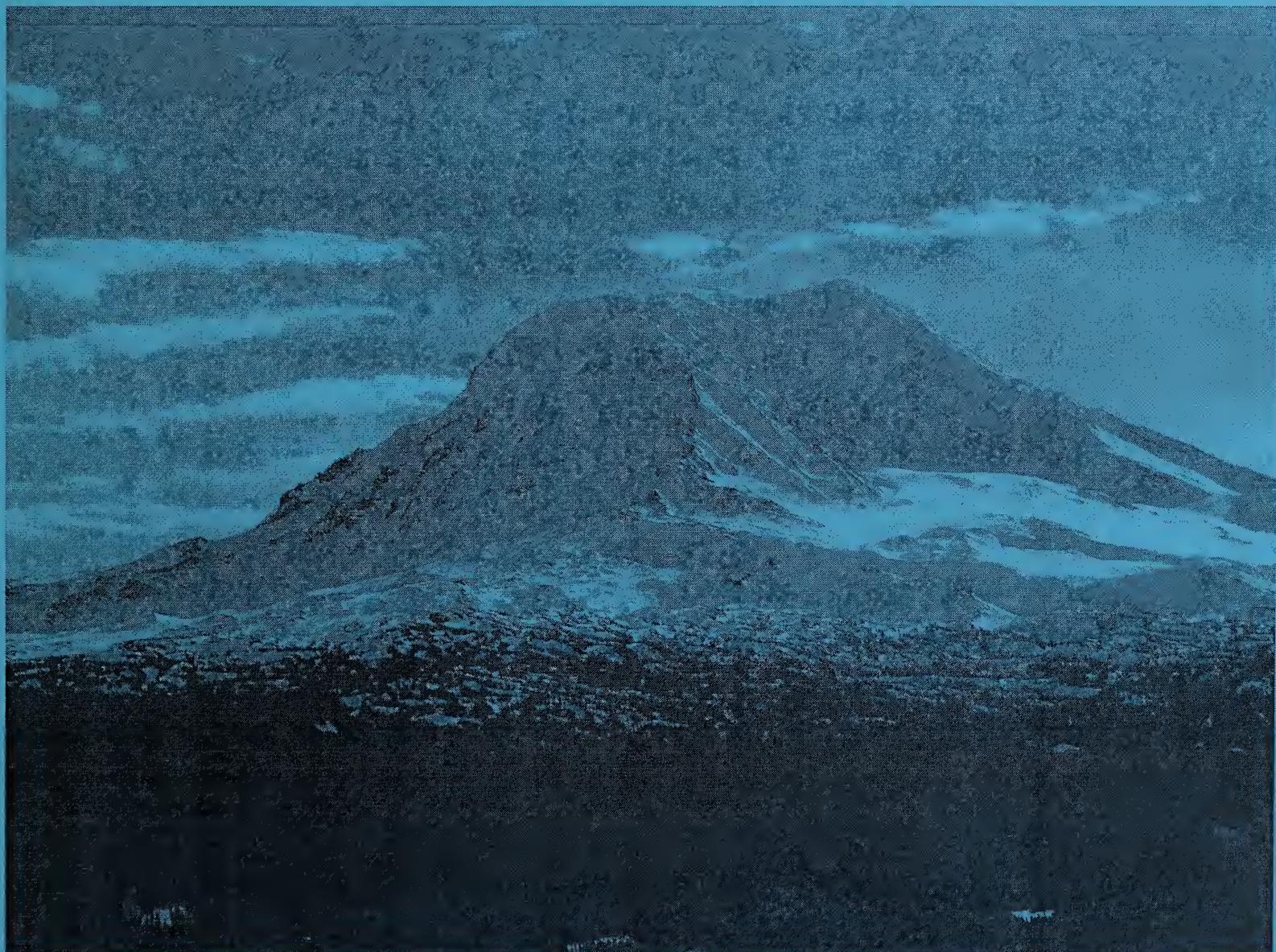


Natural  
Resources  
Conservation  
Service

# Washington

# Water Supply Outlook Report

## April 1, 2007



# Water Supply Outlook Reports and Federal - State – Private Cooperative Snow Surveys

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## *How forecasts are made*

Most of the annual streamflow in the western United States originates as snowfall that has accumulated in the mountains during the winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Measurements of snow water equivalent at selected manual snow courses and automated SNOTEL sites, along with precipitation, antecedent streamflow, and indices of the El Niño / Southern Oscillation are used in computerized statistical and simulation models to prepare runoff forecasts. These forecasts are coordinated between hydrologists in the Natural Resources Conservation Service and the National Weather Service. Unless otherwise specified, all forecasts are for flows that would occur naturally without any upstream influences.

Forecasts of any kind, of course, are not perfect. Streamflow forecast uncertainty arises from three primary sources: (1) uncertain knowledge of future weather conditions, (2) uncertainty in the forecasting procedure, and (3) errors in the data. The forecast, therefore, must be interpreted not as a single value but rather as a range of values with specific probabilities of occurrence. The middle of the range is expressed by the 50% exceedance probability forecast, for which there is a 50% chance that the actual flow will be above, and a 50% chance that the actual flow will be below, this value. To describe the expected range around this 50% value, four other forecasts are provided, two smaller values (90% and 70% exceedance probability) and two larger values (30%, and 10% exceedance probability). For example, there is a 90% chance that the actual flow will be more than the 90% exceedance probability forecast. The others can be interpreted similarly.

The wider the spread among these values, the more uncertain the forecast. As the season progresses, forecasts become more accurate, primarily because a greater portion of the future weather conditions become known; this is reflected by a narrowing of the range around the 50% exceedance probability forecast. Users should take this uncertainty into consideration when making operational decisions by selecting forecasts corresponding to the level of risk they are willing to assume about the amount of water to be expected. If users anticipate receiving a lesser supply of water, or if they wish to increase their chances of having an adequate supply of water for their operations, they may want to base their decisions on the 90% or 70% exceedance probability forecasts, or something in between. On the other hand, if users are concerned about receiving too much water (for example, threat of flooding), they may want to base their decisions on the 30% or 10% exceedance probability forecasts, or something in between. Regardless of the forecast value users choose for operations, they should be prepared to deal with either more or less water. (Users should remember that even if the 90% exceedance probability forecast is used, there is still a 10% chance of receiving less than this amount.) By using the exceedance probability information, users can easily determine the chances of receiving more or less water.

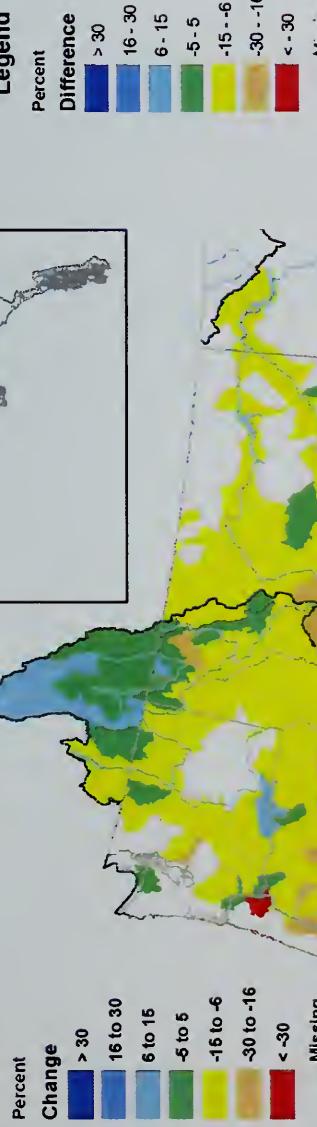
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### Change in Spring and Summer Streamflow Forecasts from March 1 to April 1, 2007

### Mountain Snowpack Change between March 1 and April 1

#### Legend



Prepared by  
USDA, Natural Resources Conservation Service  
National Water and Climate Center  
Portland, Oregon  
<http://www.nrcs.usda.gov>

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# Washington Water Supply Outlook

## April 2007

### General Outlook

March brought Washington a menagerie of weather systems including rain, snow and record temperatures. Snowfall for the month was much below average due to warmer temperatures while we were getting precipitation, producing rain-on snow storms that effectively reduced and removed all lower-mid elevation snowpack. Snow surveyors observed much higher density snow than usual for this time of year, indicating the possibility of a more rapid melt if warm temperatures persist. With this revelation, spring and summer streamflow forecasts were reduced from March 1 prediction by as much as 18%. Short term weather forecasts indicate some moisture accumulation through mid-month however the 30-day and even 90-day predictions are unstable. The Climate Prediction Center will only provide for equal chances of above, below or normal conditions.

### Snowpack

The April 1 statewide SNOTEL readings were 98% of average, down 22% from March 1. The Newman Lake Basin near Spokane reported the lowest readings at 61% of average. Readings in the Nooksack River area of Whatcom County reported the highest at 117% of average. Westside averages from SNOTEL, and April 1 snow surveys, included the North Puget Sound river basins with 110% of average, the Central Puget river basins with 107%, and the Lewis-Cowlitz basins with 102% of average. Snowpack along the east slopes of the Cascade Mountains included the Yakima area with 89% and the Wenatchee area with 86%. Snowpack in the Spokane River Basin was at 77% and the Walla Walla River Basin had 71% of average. Maximum snow cover in Washington was at Cayuse Pass snow course, with water content of 73 inches. Last year at this time Cayuse Pass had 73.4 inches of snow water. The highest average in the state was at Moses Peak snow course near Omak, WA with 140% of average.

BASIN	PERCENT OF LAST YEAR	PERCENT OF AVERAGE
Spokane .....	78 .....	77
Newman Lake .....	48 .....	61
Pend Oreille .....	72 .....	72
Okanogan .....	89 .....	97
Methow .....	90 .....	102
Conconully Lake .....	59 .....	98
Wenatchee .....	77 .....	87
Chelan .....	92 .....	96
Upper Yakima .....	75 .....	88
Lower Yakima .....	77 .....	89
Ahtanum Creek .....	54 .....	74
Walla Walla .....	68 .....	71
Lower Snake .....	64 .....	66
Cowlitz .....	84 .....	95
Lewis .....	68 .....	108
White .....	87 .....	92
Green .....	70 .....	82
Puyallup .....	78 .....	95
Cedar .....	69 .....	98
Snoqualmie .....	85 .....	106
Skykomish .....	90 .....	100
Skagit .....	109 .....	107
Baker .....	94 .....	102
Nooksack .....	105 .....	117
Olympic Peninsula .....	94 .....	104

## Precipitation

During the month of March, the National Weather Service and Natural Resources Conservation Service climate stations reported varied precipitation totals throughout Washington river basins. The highest percent of average in the state was at Alpine Meadows SNOTEL which reported 193% of average for a total of 28.4 inches. In contrast Rimrock Lake reported the lowest monthly total with only .15 inches or 7% of the average. The wettest spot in the state was reported at Alpine Meadows SNOTEL with a March accumulation of 28.4 inches. Most basins reported near average precipitation for March with only a few reporting below to much below average and one basin much above. Olympic Peninsula River Basin reported the lowest with only 38% of average for the month and Central Puget Sound had the highest with 138%.

RIVER BASIN	MARCH PERCENT OF AVERAGE	WATER YEAR PERCENT OF AVERAGE
Spokane .....	104.....	111
Colville-Pend Oreille .....	108.....	112
Okanogan-Methow .....	93.....	112
Wenatchee-Chelan .....	100.....	116
Upper Yakima .....	100.....	117
Lower Yakima .....	85.....	119
Walla Walla .....	61.....	101
Lower Snake .....	62.....	97
Cowlitz-Lewis .....	86.....	107
White-Green-Puyallup .....	110.....	113
Central Puget Sound .....	138.....	123
North Puget Sound .....	108.....	114
Olympic Peninsula .....	38.....	92

## Reservoir

Seasonal reservoir levels in Washington vary greatly due to specific watershed management practices required in preparation for irrigation season, fisheries management, power generation, municipal demands and flood control. Reservoir storage in the Yakima Basin was 703,000-acre feet, 127% of average for the Upper Reaches and 197,000-acre feet, 130% of average for Rimrock and Bumping Lakes. Storage at the Okanogan reservoirs was 103% of average for April 1. The power generation reservoirs included the following: Coeur d'Alene Lake, 301,000 acre feet, 177% of average and 126% of capacity; Chelan Lake, 394,000-acre feet, 182% of average and 58% of capacity; Skagit River reservoirs at 124% of average and 64% of capacity and the Cowlitz – Lewis reservoir systems with 2,960,000-acre feet of storage.

BASIN	PERCENT OF CAPACITY	CURRENT STORAGE AS PERCENT OF AVERAGE
Spokane .....	126.....	177
Colville-Pend Oreille .....	54.....	110
Okanogan-Methow .....	77.....	103
Wenatchee-Chelan .....	58.....	182
Upper Yakima .....	84.....	127
Lower Yakima .....	85.....	130
Lower Snake .....	81.....	127
Cowlitz-Lewis .....	N/A.....	N/A
North Puget Sound .....	64.....	124

*For more information contact your local Natural Resources Conservation Service office.*

## Streamflow

Forecasts vary from 112% of average for the S.F. Tolt River to 70% of average for both the Grand Ronde at Troy and the Snake River below Lower Granite Dam. April-September forecasts for some Western Washington streams include the Cedar River near Cedar Falls, 98%; White River, 94%; and Skagit River, 103%. Some Eastern Washington streams include the Yakima River near Parker, 97%; Wenatchee River at Plain, 103%; and Spokane River near Post Falls, 85%. Volumetric forecasts are developed using current, historic and average snowpack, precipitation and streamflow data collected and coordinated by organizations cooperating with NRCS. Caution should be used when using early season forecasts for critical water resource management decisions.

Statewide March streamflows were mostly all much above average primarily due to warmer temperatures and above average precipitation during the month. The Similkameen at Nighthawk had the highest reported flows with 431% of average. The Snake River below Lower Granite Dam with 83% of average was the lowest in the state. Other streamflows were the following percentage of average as reported by the River Forecast Center: the Cowlitz at Castle Rock, 175%; the Spokane at Spokane, 175%; and the Bumping near Nile, 282%.

BASIN	PERCENT OF AVERAGE (50 PERCENT CHANCE OF EXCEEDENCE)
Spokane .....	85-88
Colville-Pend Oreille .....	88-102
Okanogan-Methow .....	85-110
Wenatchee-Chelan .....	97-108
Upper Yakima .....	99-103
Lower Yakima .....	75-102
Walla Walla .....	82-88
Lower Snake .....	70-83
Cowlitz-Lewis .....	80-102
White-Green-Puyallup .....	94-95
Central Puget Sound .....	98-112
North Puget Sound .....	92-103
Olympic Peninsula .....	99

STREAM	PERCENT OF AVERAGE MARCH STREAMFLOWS
Pend Oreille Below Box Canyon .....	182
Kettle at Laurier .....	130
Columbia at Birchbank .....	198
Spokane at Long Lake .....	158
Similkameen at Nighthawk .....	431
Okanogan at Tonasket .....	242
Methow at Pateros .....	265
Chelan at Chelan .....	260
Wenatchee at Pashastin .....	245
Yakima at Cle Elum .....	229
Yakima at Parker .....	225
Naches at Naches .....	260
Grande Ronde at Troy .....	93
Snake below Lower Granite Dam .....	83
SF Walla Walla near Milton Freewater .....	166
Columbia River at The Dalles .....	126
Lewis at Ariel .....	137
Cowlitz below Mayfield Dam .....	175
Skagit at Concrete .....	230
Dungeness near Sequim .....	105

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**B A S I N   S U M M A R Y   O F  
S N O W   C O U R S E   D A T A**

**APRIL 2007**

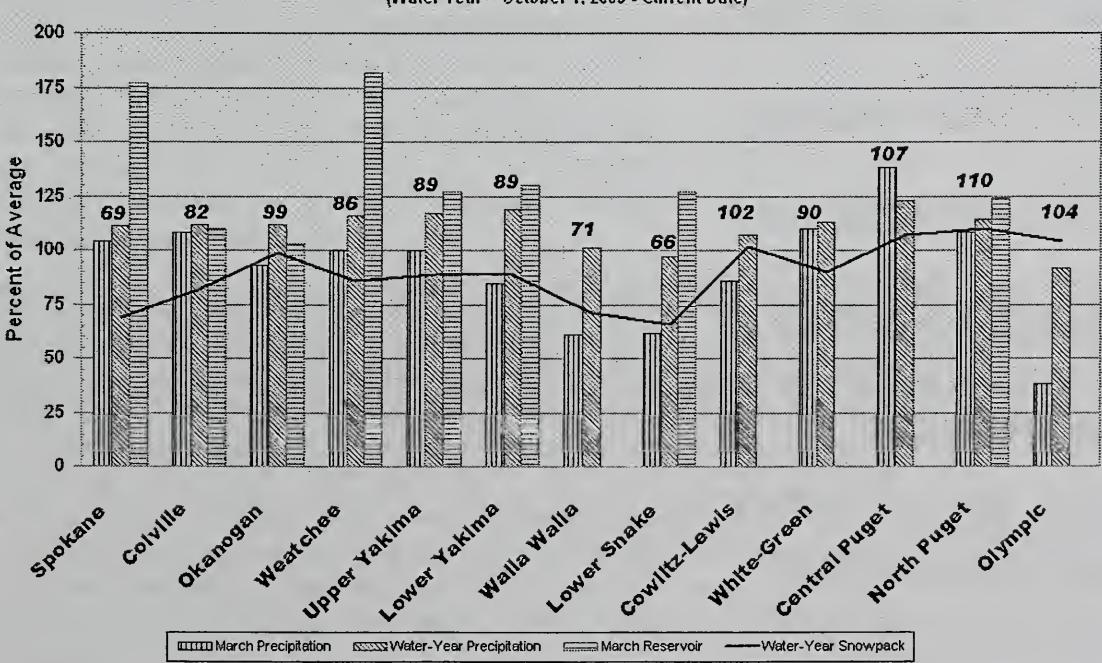
SNOW COURSE	EL E V A T I O N	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1971-00	SNOW COURSE	EL E V A T I O N	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1971-00
ABERDEEN LAKE CAN.	4000	4/02/07	10	4.1	--	5.6	FROST MEADOWS	4630	3/27/07	46	18.4	22.3	--
ABTANUM R.S.	3100	3/29/07	0	.0	8.0	5.3	GOAT CREEK	3600	3/27/07	10	3.5	8.2	3.6
ALPINE MEADOWS	3500	3/28/07	97	47.0	51.0	42.3	GOLD CREEK LAKE	7200	3/25/07	47	16.9	19.8	14.7
ALPINE MEADOWS SNTL	3500	4/01/07	99	56.8	61.1	43.6	GOLD MTN LOOKOUT	3/29/07	26	9.1	15.9	--	--
AMBROSE	6480	3/26/07	28	9.4	10.0	12.4	GRASS MOUNTAIN #2	2900	3/28/07	0	.0	14.0	10.0
ASHLEY DIVIDE	4820	3/27/07	3	.6	4.2	6.0	GRAVE CREEK	4300	3/30/07	28	10.4	16.7	--
BADGER PASS	6900	3/26/07	74	32.1	40.7	--	GRAVE CRK SNOTEL	4300	4/01/07	23	9.5	16.8	15.6
BADGER PASS SNOTEL	6900	4/01/07	65	29.1	33.3	35.3	GRAYSTOKE LAKE CAN.	5500	4/04/07	33	11.8	--	16.0
BAIRD #2	3220	3/29/07	14	5.1	8.4	--	GREEN LAKE SNOTEL	6000	4/01/07	56	23.6	32.6	23.0
BAREE CREEK	5500	3/30/07	75	33.3	33.3	43.1	GREYBACK RES. CAN.	4700	3/27/07	27	8.7	9.6	9.2
BAREE MIDWAY	4600	3/30/07	64	26.7	33.4	33.0	GRIFFIN CR DIVIDE	5150	4/02/07	11	3.7	10.7	10.3
BAREE TRAIL	3800	3/30/07	21	8.1	11.8	7.7	GROUSE CAMP SNOTEL	5380	4/01/07	64	20.3	28.6	19.8
BARKER LAKES SNOTEL	8250	4/01/07	46	14.0	14.4	14.6	GUNSLIGHT LAKE	6300	3/26/07	73	31.3	36.4	39.3
BARNES CREEK CAN.	5320	3/28/07	50	17.7	16.5	20.4	HAMILTON HILL CAN.	4550	3/29/07	31	12.8	9.5	14.0
BASIN CREEK SNOTEL	7180	4/01/07	26	6.4	8.6	8.7	HAND CREEK SNOTEL	5030	3/30/07	19	7.0	11.6	--
BASSOON PEAK	5150	3/30/07	18	6.6	10.3	9.7	HARTS PASS SNOTEL	6500	4/01/07	103	49.5	44.2	46.3
BEAVER CREEK TRAIL	2200	3/30/07	29	13.7	12.1	11.7	HARTS PASS	6500	3/28/07	112	50.7	47.0	42.0
BEAVER PASS	3680	3/30/07	82	36.6	30.4	28.8	HEART LAKE TRAIL	4800	3/29/07	37	12.4	18.7	20.6
BEAVER PASS SNOTEL	3680	4/01/07	104	47.1	44.8	38.6	HELL ROARING DIVIDE	5770	3/27/07	61	23.6	33.1	29.5
BIG WHITE MTN CAN.	5510	3/30/07	49	17.7	21.3	20.0	HERRIG JUNCTION	4850	3/28/07	55	22.3	26.3	26.0
BLACK MOUNTAIN	7750	3/29/07	52	16.2	14.5	14.6	HIGH RIDGE SNOTEL	4920	4/01/07	43	18.9	27.5	23.1
BLACK PINE SNOTEL	7100	4/01/07	22	8.7	11.6	12.5	HOLBROOK	4530	3/30/07	0	.0	6.8	8.2
BLACKWALL PEAK CAN.	6370	4/01/07	---	38.5	28.9	35.1	HOODOO BASIN SNOTEL	6050	4/01/07	87	34.5	46.6	45.3
BLEWETT PASS #2	4270	3/28/07	27	12.8	18.5	14.7	HUCKLEBERRY SNOTEL	2000	4/01/07	0	.0	.0	--
BLEWETT PASS#2SNOTEL	4270	4/01/07	12	7.8	16.1	16.4	HUMBOLDT GLCH SNOTEL	4250	4/01/07	---	6.7	9.7	11.2
BLUE LAKE	5900	3/26/07	43	18.0	20.6	23.7	HURRICANE	4500	4/01/07	---	18.7E	16.5	19.1
BRENDA MINE CAN.	4450	4/01/07	---	15.2	15.6	12.5	INTERGAARD	6450	3/25/07	14	4.5	6.3	7.7
BROOKMERE CAN.	3000	3/29/07	23	8.1	7.8	7.9	ISINTOK LAKE CAN.	5100	3/29/07	18	5.1	6.8	7.2
BROWN TOP AM	6000	3/28/07	197	69.4	67.4	60.8	JUNE LAKE SNOTEL	3200	4/01/07	79	43.4	63.2	35.7
BROWNS PASS	3/27/07	0	.0	6.5	--	KELLER RIDGE	3700	4/02/07	4	1.3	6.0	--	
BRUSH CREEK TIMBER	5000	3/28/07	13	4.6	7.8	8.1	KELLOGG PEAK	5560	4/02/07	46	24.4	30.8	29.2
BULL MOUNTAIN	6600	3/26/07	0	.0	6.0	5.9	KISHNEEN	3890	3/28/07	18	6.1	6.5	6.8
BUMPING RIDGE SNOTEL	4600	4/01/07	63	27.3	36.6	28.6	KIT CARSON PASTURE	4950	3/27/07	0	.0	6.9	8.1
BUNCHGRASS MDWSNOTEL	5000	4/01/07	55	21.7	34.5	30.2	KLESILKWA CAN.	3450	3/30/07	27	12.7	10.7	11.5
BURNT MOUNTAIN FIL	4200	4/01/07	37	15.7	19.9	13.7	KRAFT CREEK SNOTEL	4750	4/01/07	0	.0	10.3	14.1
BUTTE CREEK #2	3/27/07	23	7.0	9.6	--	LESTER CREEK	3100	3/28/07	52	21.2	28.1	21.4	
BUTTERMILK BUTTE	5250	3/28/07	41	17.2	19.4	--	LIGHTNING LAKE CAN.	3700	3/26/07	37	14.5	13.3	12.0
CAMP MISERY	6400	3/29/07	92	38.3	54.4	49.3	LOGAN CREEK	4300	3/28/07	14	4.6	7.2	6.7
CARMI CAN.	4100	3/30/07	12	3.7	5.8	5.6	LOLO PASS SNOTEL	5240	4/01/07	53	22.0	32.3	30.3
CAYUSE PASS	5300	4/03/07	149	73.0	73.4	79.8	LOONE PINE SNOTEL	3800	4/01/07	78	38.4	52.3	36.4
CAYUSE PASS SNOTEL	5200	4/01/07	119	57.8	--	LOOKOUT SNOTEL	5140	4/01/07	58	24.6	30.0	31.8	
CEDAR GROVE	3760	3/27/07	21	7.2	11.4	11.4	LOST HORSE SNOTEL	5940	3/29/07	52	20.2	30.7	30.7
CHESSMAN RESERVOIR	6200	3/27/07	3	.5	1.3	3.5	LOST HORSE SNOTEL	5000	4/01/07	25	11.0	24.0	18.3
CHEWALAN #2	4930	3/29/07	40	15.0	27.5	--	LOU LOUP CAMPGROUND	3/26/07	27	10.4	15.5	--	--
CHICKEN CREEK	4060	3/28/07	37	14.3	18.5	15.2	LOWER SANDS CREEK #2	3120	3/28/07	44	16.8	22.3	18.9
CHIWAUKUM G.S.	2500	3/26/07	27	9.8	9.2	9.2	LUBRECHT FOREST NO 3	5450	4/01/07	0	.0	4.6	5.7
CITY CABIN	2390	3/28/07	0	.0	10.5	11.1	LUBRECHT FOREST NO 4	4650	4/01/07	0	.0	1.6	1.3
CLOUDY PASS AM	6500	3/27/07	101	43.4	52.4	50.1	LUBRECHT FOREST NO 6	4040	4/01/07	0	.0	2.8	1.6
COLOCKUM PASS	5370	3/27/07	36	15.0	22.4	16.3	LUBRECHT HYDROPLOT	4200	4/01/07	0	.0	5.6	2.9
COMBINATION SNOTEL	5600	4/01/07	0	.0	4.1	4.9	LUBRECHT SNOTEL	4680	4/01/07	0	.0	3.3	3.6
COPPER BOTTOM SNOTEL	5200	4/01/07	0	.0	6.2	11.0	LYMAN LAKE SNOTEL	5900	4/01/07	143	66.8	65.9	65.4
COPPER CAMP	6950	4/01/07	49	20.9	--	--	LYNN LAKE	4000	3/28/07	46	18.5	29.9	20.4
COPPER CREEK	5700	4/01/07	0	.0	8.7	13.3	MARIA PASS	5250	3/29/07	27	11.5	15.7	16.8
COPPER MOUNTAIN	7700	3/26/07	26	7.4	12.3	11.2	MARTEN LAKE AM	3600	4/01/07	---	79.6e	80.7	71.7
CORNER CREEK	3150	3/30/07	13	4.6	5.7	5.9	MARTEN RIDGE SNOTEL	3560	4/01/07	125	55.0	--	--
CORRAL PASS SNOTEL	6000	4/01/07	79	33.3	38.5	34.9	MAZAMA	3/28/07	13	6.3	10.4	--	--
COTTONWOOD CREEK	6400	3/29/07	26	6.8	7.2	8.3	MCCULLOCH CAN.	4200	4/03/07	9	3.5	7.1	6.1
COUGAR MTN. SNOTEL	3200	4/01/07	28	12.8	22.0	17.7	MEADOWS CABIN	1900	3/30/07	0	.0	.0	4.0
COX VALLEY	4500	3/30/07	84	43.4	47.0	38.7	MEADOWS PASS SNOTEL	3240	4/01/07	55	26.5	39.9	23.9
COYOTE HILL	4200	3/29/07	9	2.4	8.2	8.7	MERRITT	2140	3/26/07	24	9.8	10.2	12.1
DALY CREEK SNOTEL	5780	4/01/07	24	8.1	10.6	11.1	METEOR	3/29/07	0	.0	.0	--	--
DEER PARK	5200	3/28/07	43	21.6	16.7	18.8	M P NOOKSACK SNOTEL	4980	4/01/07	120	62.6	55.8	--
DESERT MOUNTAIN	5600	3/26/07	32	11.2	14.2	14.7	MICA CREEK SNOTEL	4750	4/01/07	51	21.5	22.6	25.1
DEVILS PARK	5900	3/28/07	112	49.3	28.2	44.2	MINERAL CREEK	4000	3/29/07	13	4.6	17.0	17.4
DISAUTEL PASS	3/27/07	13	3.9	8.2	--	MISSEZULA MTN CAN.	5080	3/28/07	23	8.3	7.2	9.5	
DISCOVERY BASIN	7050	3/26/07	31	9.3	9.0	10.4	MISSION CREEK CAN.	5840	4/01/07	---	18.2	18.9	20.0
DIX HILL	6400	4/01/07	13	4.3	9.9	10.3	MISSION RIDGE	5000	3/26/07	38	15.7	22.4	17.4
DOCK BUTTE AM	3800	3/28/07	124	55.8	--	MONASHEE PASS CAN.	4500	3/28/07	35	12.1	11.2	13.5	
DUNGENESS SNOTEL	4100	4/01/07	10	5.2	11.4	8.6	MORRISSEY RIDGE CAN.	6100	4/01/07	---	26.4	29.7	27.8
EAST FORK R.S.	5400	3/26/07	2	.4	5.3	4.7	MOSE S MOUNTAIN (2)	4800	4/01/07	105	49.7	67.8	55.5
EL DORADO MINE	7800	3/25/07	31	10.3	13.0	20.2	MOSES MTN SNOTEL	4800	4/01/07	37	15.5	26.7	15.9
ELBOW LAKE SNOTEL	3200	4/01/07	87	44.5	45.6	39.2	MOSES PEAK	6650	3/28/07	60	21.0	37.6	15.0
EMERY CREEK	4350	3/26/07	31	11.1	15.0	--	MOSQUITO RDG SNOTEL	5200	4/01/07	---	30.4	36.4	35.8
EMERY CREEK SNOTEL	4350	4/01/07	23	8.9	14.1	15.3	MOULTON RESERVOIR	6850	3/28/07	12	3.1	8.4	6.9
ENDERBY CAN.	5800	4/01/07	102	41.7	44.9	40.1	MOUNT C RAG SNOTEL	4050	4/01/07	74	28.2	35.2	30.8
ESPERON CK. MID CAN.	4250	3/30/07	89	13.2	16.0	14.6	MT. KOBAU CAN.	5500	3/31/07	38	12.6	17.1	12.5
ESPERON CK. UP CAN.	5050	3/30/07	38	14.6	17.1	17.1	MOUNT TOLMAN	2000	3/27/07	0	.0	.0	--
FARRON CAN.	4000	3/29/07	26	10.6	15.0	12.5	MO WICH SNOTEL	3150	4/01/07	0	.0	.0	--
FATTY CREEK	5500	3/30/07	47	18.2	26.3	24.3	MOUNT GARDNER	3300	3/28/07	28	12.0	20.8	12.5
FISH CREEK	8000	3/28/07	38	8.6	8.8	9.9	MOUNT GARDNER SNOTEL	2860	4/01/07	28	14.2	20.5	13.0
FISH LAKE	337												

SNOW COURSE	EL ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1971-00	SNOW COURSE	EL ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1971-00
NEZ PERCE CMP SNOTEL	5650	4/01/07	27	9.9	16.3	14.7	SOURDOUGH GUL SNOTEL	4000	4/01/07	0	.0	.0	--
NEZ PERCE PASS	6570	3/27/07	27	8.8	15.9	17.8	SPENCER MDW SNOTEL	3400	4/01/07	66	35.4	45.8	30.8
NOISY BASIN	6040	3/29/07	86	35.1	46.7	--	SPRICE SPGS SNOTEL	3100	4/01/07	0	.0	11.9	3.9
NOISY BASIN SNOTEL	6040	4/01/07	90	33.7	45.0	40.9	SPOTTED BEAR MTN.	7000	3/26/07	21	6.7	13.3	14.1
NORTH FORK JOCKO	6330	3/30/07	75	31.5	44.1	42.3	STARVATION MOUNTAIN	6750	3/26/07	48	18.5	26.6	19.5
OLALLIE MDWS SNOTEL	3960	4/01/07	113	58.5	67.4	55.9	STAHL PEAK SNOTEL	6030	4/01/07	81	31.3	38.3	35.3
OPHIR PARK	7150	4/01/07	30	10.3	15.4	16.7	STAMPEDE PASS SNOTEL	3860	4/01/07	84	40.5	48.7	45.3
OVAMA LAKE CAN.	4100	3/30/07	16	5.1	6.9	6.7	STEMILT SLIDE	5000	3/26/07	20	8.5	--	12.9
PALISADE CREEK	8250	3/29/07	68	25.4	34.4	29.8	STEMPLE PASS	6600	3/30/07	22	6.7	9.1	10.2
PARADISE PARK SNOTEL	5500	4/01/07	136	69.3	77.9	71.9	STEVENS PASS SNOTEL	4070	4/01/07	92	37.0	45.1	42.6
PARK CK RIDGE SNOTEL	4600	4/01/07	102	54.1	55.2	47.6	STORM LAKE	7780	3/28/07	43	12.0	13.5	13.3
PETERSON MDW SNOTEL	7200	4/01/07	34	10.3	9.3	10.5	STRANGER MOUNTAIN	4230	3/28/07	28	10.5	18.9	12.2
PIGTAIL PEAK SNOTEL	5900	4/01/07	114	54.1	58.9	53.2	STRYKER BASIN	6180	3/28/07	66	24.3	36.9	31.9
PIKE CREEK	5930	3/28/07	45	19.7	25.4	--	STUART MOUNTAIN	7400	3/30/07	69	28.3	35.8	--
PIKE CREEK SNOTEL	5930	4/01/07	48	19.9	28.2	27.5	SUMMERLAND RES CAN.	4200	3/29/07	16	10.0	9.5	8.9
PIPESTONE PASS	7200	3/26/07	9	2.6	4.5	5.7	SUMMIT G.S. #2	4600	3/27/07	30	8.7	13.1	8.4
POPE RIDGE SNOTEL	3540	4/01/07	37	15.9	23.3	18.4	SUNSET SNOTEL	5540	4/01/07	--	16.3	20.3	31.5
POSTILL LAKE CAN.	4200	3/31/07	22	7.2	8.5	8.8	SURPRISE LKS SNOTEL	4250	4/01/07	99	47.0	73.7	46.1
POTATO HILL SNOTEL	4500	4/01/07	69	29.1	35.7	SWAMP CREEK SNOTEL	4000	4/01/07	36	17.7	17.3	16.2	
QUARTZ PEAK SNOTEL	4700	4/01/07	40	15.5	24.9	TEN MILE LOWER	6600	3/28/07	17	4.1	7.0	7.0	
RAGGED MTN SNOTEL	4210	4/01/07	35	14.3	--	TEN MILE MIDDLE	6800	3/28/07	31	8.2	11.2	11.4	
RAGGED RIDGE	3330	3/27/07	0	.0	6.0	THUNDER BASIN SNOTEL	4200	4/01/07	62	34.9	33.2	33.7	
RAINY PASS SNOTEL	4780	4/01/07	91	38.8	41.3	44.0	THUNDER BASIN	4200	3/28/07	56	23.7	20.0	21.9
RAINY PASS	4780	3/29/07	81	39.6	34.5	THOMPSON CREEK	2500	3/27/07	0	.0	.0	--	
REX RIVER SNOTEL	1900	4/01/07	71	36.5	45.3	TINKHAM CREEK SNOTEL	3000	4/01/07	71	29.5	34.7	30.0	
ROCKER PEAK SNOTEL	8000	4/01/07	43	12.0	14.6	TOATS COULEE	2850	3/30/07	0	.0	3.4	1.4	
ROCKY CREEK AM	2100	3/28/07	72	32.4	--	TOGO	3370	3/28/07	26	9.1	--	10.7	
ROLAND SUMMIT	5120	3/30/07	69	31.1	37.8	TOUCHET SNOTEL	5530	4/01/07	50	22.3	33.4	34.7	
ROUND TOP MTN	4020	3/28/07	16	6.4	14.4	--	TRINKUS LAKE	6100	3/26/07	82	36.1	44.8	42.0
RUSTY CREEK	4000	3/23/07	13	4.2	11.7	TROUGH #2 SNOTEL	5310	4/01/07	15	6.0	14.4	10.0	
SADDLE MTN SNOTEL	7900	4/01/07	67	19.9	27.8	TROUT CREEK CAN.	5650	3/28/07	22	8.2	7.8	7.2	
SAGE CREEK SADDLE	4080	3/30/07	36	14.4	--	TRUMAN CREEK	4060	3/30/07	2	.4	1.7	3.7	
SALMON MDWS SNOTEL	4500	4/01/07	26	9.5	15.0	TUNNEL AVENUE	2450	4/04/07	39	17.2	23.8	19.2	
SASSE RIDGE SNOTEL	4200	4/01/07	72	32.6	41.0	TV MOUNTAIN	6800	3/30/07	43	15.1	19.1	18.3	
SATUS PASS	4030	3/30/07	12	4.5	19.6	TWELVEMILE SNOTEL	5600	4/01/07	22	9.5	21.2	17.5	
SAVAGE PASS SNOTEL	6170	4/01/07	50	20.1	26.4	TWIN CAMP	4100	3/28/07	50	20.6	25.2	24.1	
SAWMILL RIDGE	4700	3/28/07	61	27.3	32.8	TWIN CREEKS	3580	3/26/07	12	4.2	9.0	9.6	
SAWMILL RIDGE SNOTEL	4700	4/01/07	77	51.1	--	TWIN LAKES SNOTEL	6400	4/01/07	77	33.5	48.5	39.7	
SCHREIBERS MDW AM	3400	3/30/07	134	67.6	64.2	UPPER HOLLAND LAKE	6200	3/26/07	62	25.6	25.6	34.6	
SENTINEL BT SNOTEL	4920	4/01/07	20	7.5	11.3	UPPER WHEELER SNOTEL	4400	4/01/07	31	11.3	18.3	13.1	
SHEEP CANYON SNOTEL	4050	4/01/07	74	33.8	49.4	VASEUX CREEK CAN.	4250	3/27/07	12	3.6	4.4	6.2	
SHERWIN SNOTEL	3200	4/01/07	--	.5	5.7	VULCAN MTN	4660	3/27/07	31	11.4	15.9	--	
SILVER STAR MTN CAN.	5600	3/31/07	74	29.2	32.6	VULCAN ROAD	3840	3/27/07	23	7.9	11.1	--	
SKALKHAO SNOTEL	7260	4/01/07	51	19.5	25.1	WARM SPRINGS SNOTEL	7800	4/01/07	69	21.3	21.6	21.2	
SKITWISH RIDGE	5110	3/28/07	62	25.9	33.9	WATSON LAKES AM	4500	3/28/07	124	55.8	70.2	61.7	
SKOOKUM CREEK SNOTEL	3920	4/01/07	39	24.2	39.0	WATERHOLE SNOTEL	5000	4/01/07	94	40.0	39.6	35.3	
SKOOKUM LAKES	4230	3/29/07	22	7.9	14.0	WEASEL DIVIDE	5450	3/30/07	66	25.5	33.8	32.9	
SLIDE ROCK MOUNTAIN	7100	3/24/07	30	9.9	14.1	WELLS CREEK SNOTEL	4200	4/01/07	83	40.6	39.8	33.6	
						WHITE PASS ES SNOTEL	4500	4/01/07	49	20.9	27.3	23.9	
						WHITE ROCKS MTN CAN.	7200	3/30/07	59	22.7	25.9	23.1	

NRCS Natural Resources Conservation Service

April 1, 2007 -  
Snowpack, Precipitation and Reservoir  
Conditions at a Glance

(Water Year = October 1, 2006 - Current Date)





Natural Resources Conservation Service

Washington State  
Snow, Water and Climate Services

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**Helpful Internet Addresses**

**NRCS Snow Survey and Climate Services Homepages**

Washington:  
<http://www.wa.nrcc.usda.gov/snow>

Oregon:  
<http://www.or.nrcc.usda.gov/snow>

Idaho:  
<http://www.id.nrcc.usda.gov/snow>

National Water and Climate Center (NWCC) :  
<http://www.wcc.nrcc.usda.gov>

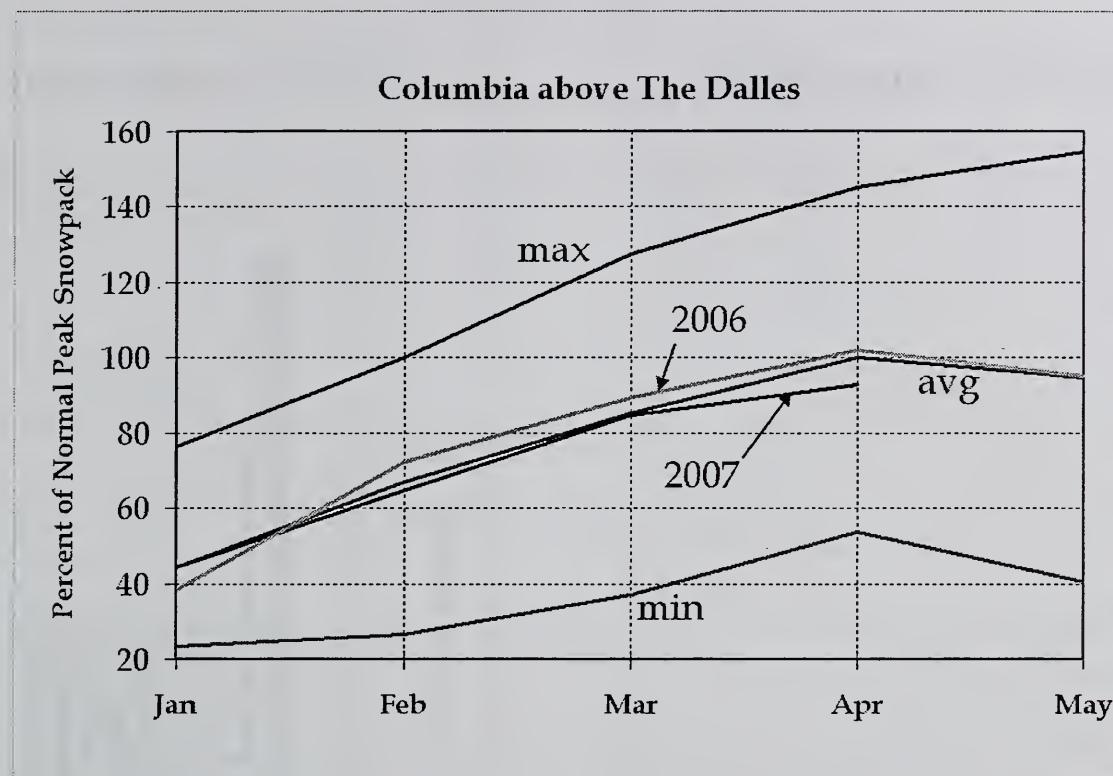
NWCC Anonymous FTP Server:  
<ftp://wcc.nrcc.usda.gov>

**USDA-NRCS Agency Homepages**

Washington:  
<http://www.wa.nrcc.usda.gov>

NRCS National:  
<http://www.nrcc.usda.gov>

# Columbia Basin Snowpack Summary



April 4, 2007

The Columbia Basin snowpack charts are produced, using only automated data. These data are telemetered via remote collection sites in Canada and the United States. The data are provisional, until they are officially released by the responsible data collection agency.

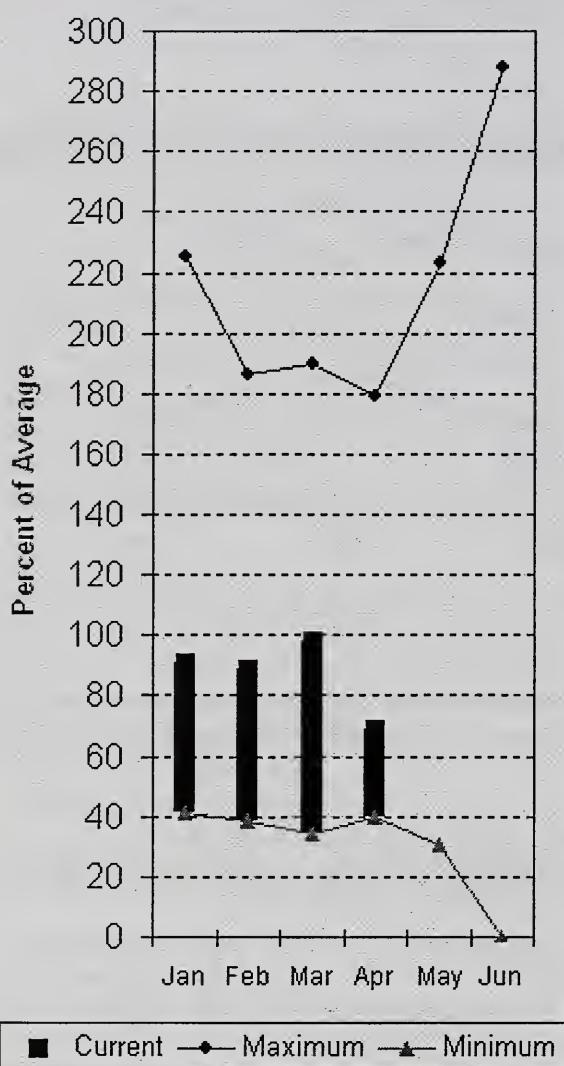
The United States portion of the Columbia Basin should be thankful for all of the liquid gold (snow) that is currently stored in Canada. The Canadian Upper Columbia snow pack was at 124% of average as of April 1. This is up from 117% on March 1. The Kootenay and Kettle snow packs are 102% and 103%, respectively...essentially unchanged from last month. Likewise, the Northern Cascades in Canada still hold an impressive amount of snow. Once you cross over the border into the U.S. the snow pack is doing a serious nose dive! The North Cascades snow pack has decreased from 114% to 103% over the last month. So, if the snow pack continues to increase into Canada, you can surmise that the North Cascade snow pack in the U.S. is really tailing off. Continuing... the Pend Oreille snow pack has decreased from 90% to 77%, the Spokane from 88% to 72%, the Yakima from 112% to 88%, the Snake headwaters from 78% to 63%, the Boise and southern Idaho from 77% to 61%, the eastern Oregon/Owyhee from 75% to 51%, the Salmon from 83% to 69%, the Clearwater from 88% to 76%, the John Day from 75% to 49%, and the Deschutes from 95% to 78%. I mention all of the major basins to call attention to the mass exodus of the U.S. portion of the snow pack during March. Lack of precipitation and warm temperatures really took a toll!

Overall, the Columbia Basin snow pack decreased from 99% of average to 93%. This is 10% lower than last year. The snow pack is at 93% of the average peak accumulation, compared to 102% last year. The snow pack above Castlegar has increased from 111% on March 1 to 115% currently. It was only 92% last year. The snow pack above Grand Coulee is at 103%, 2% lower than last month, but 8% higher than last year. The snow pack in the Snake River Basin above Ice Harbor is at 68% of average, compared to 82% last month and 115% last year.

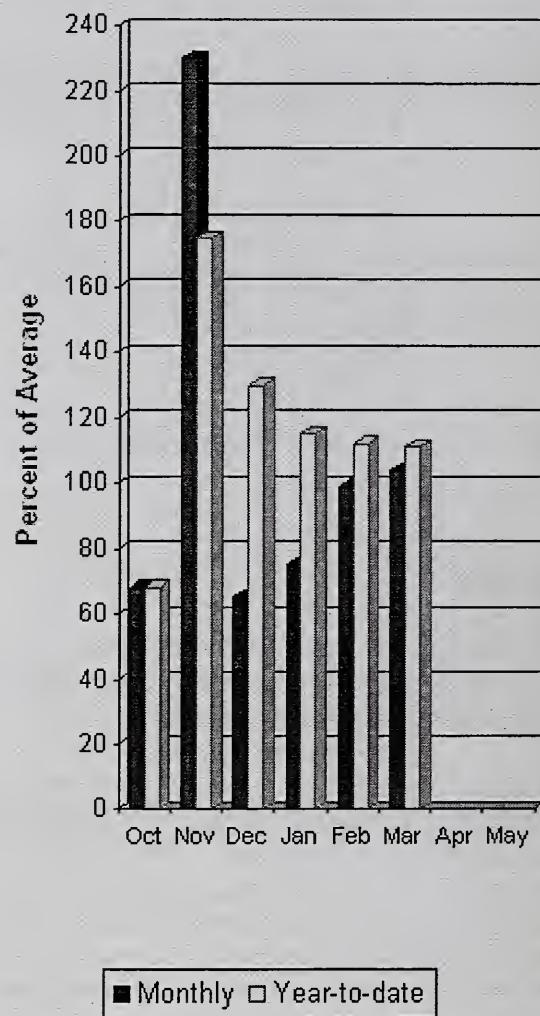
Last month, I joked about climate mood swings and indicated that there might be more surprises in store for us this year. As you have witnessed, we have been dealt a cruel blow once again, in the form of much below normal precipitation over most of the Columbia Basin below Canada. If it wasn't for the excellent snow pack in Canada, we might be in a world of hurt. Let's hope that the climate is more favorable to the overall Columbia during the coming months.

# Spokane River Basin

## Mountain Snowpack\*



## Basin Precipitation\*



\*Based on selected stations

The April 1 forecasts for summer runoff within the Spokane River Basin are 85% of average near Post Falls and 85% at Long Lake. The Chamokane River near Long Lake forecasted to have 88% of average flows for the May-August period. The forecast is based on a basin snowpack that is 77% of average and precipitation that is 111% of average for the water year. Precipitation for March was near normal at 104% of average. Streamflow on the Spokane River at Long Lake was 158% of average for March. April 1 storage in Coeur d'Alene Lake was 301,000 acre feet, 177% of average and 126% of capacity. Snowpack at Quartz Peak SNOTEL site dropped to 73% of average with 15.5 inches of water content. Average temperatures in the Spokane basin were 2 degrees above normal for March and near normal for the water year.

# Spokane River Basin

## SPOKANE RIVER BASIN Streamflow Forecasts - April 1, 2007

Forecast Point	Forecast Period	<===== Drier ===== Future Conditions ===== Wetter =====>						30-Yr Avg. (1000AF)	
		Chance Of Exceeding *							
		90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)		
SPOKANE near Post Falls (2)	APR-SEP	1750	2040	2240	85	2440	2730	2650	
	APR-JUL	1690	1970	2160	85	2350	2630	2550	
SPOKANE at Long Lake (2)	APR-JUL	1850	2190	2420	85	2650	2990	2850	
	APR-SEP	2020	2380	2620	85	2860	3220	3070	
CHAMOKANE CREEK near Long Lake	MAY-AUG	5.1	7.3	9.0	88	10.9	14.1	10.2	

## SPOKANE RIVER BASIN Reservoir Storage (1000 AF) - End of March

## SPOKANE RIVER BASIN Watershed Snowpack Analysis - April 1, 2007

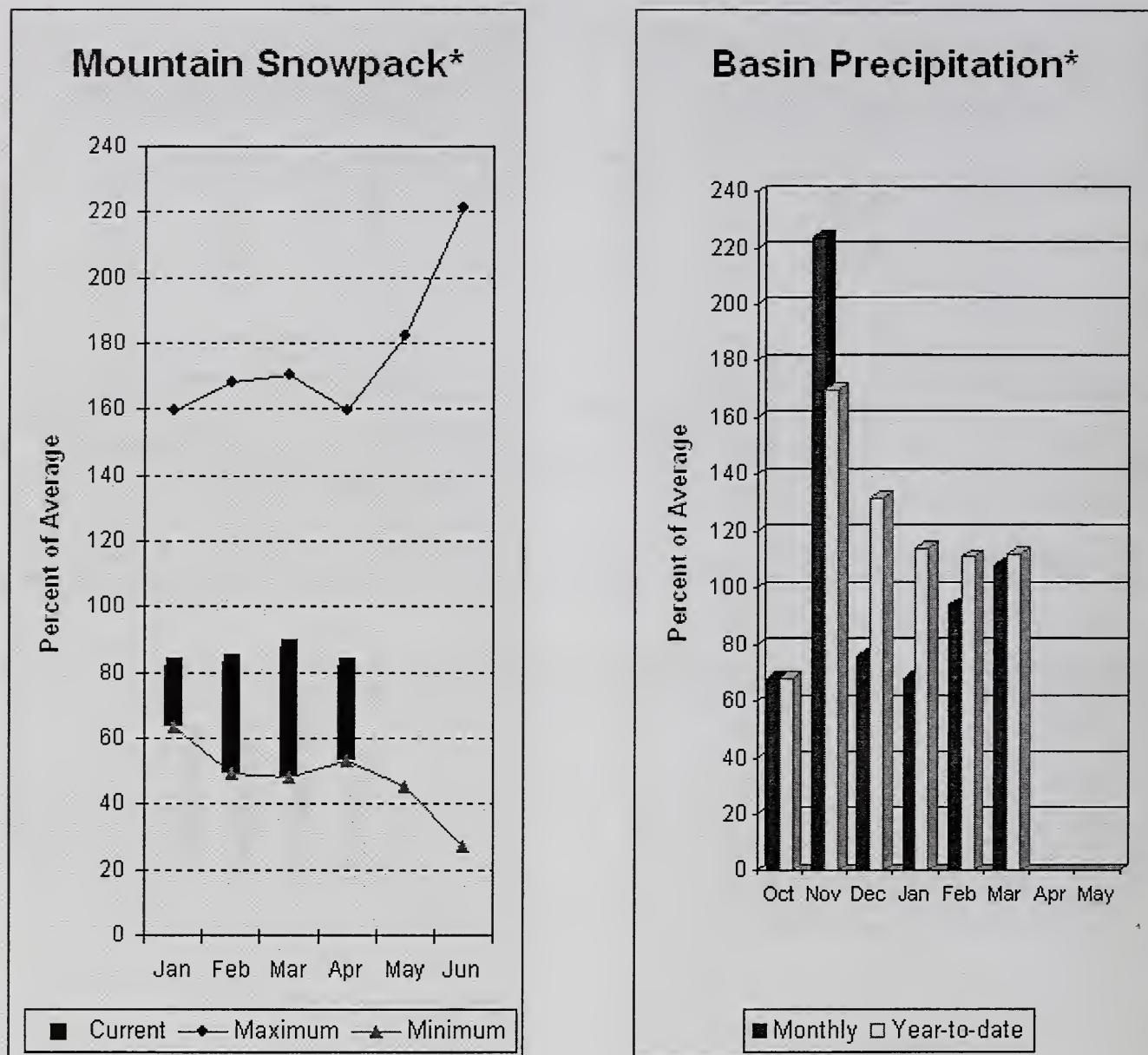
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of Last Yr	Average
		This Year	Last Year	Avg				
COEUR D'ALENE	238.5	300.6	132.9	169.5	SPOKANE RIVER	18	78	77
					NEWMAN LAKE	2	48	61

\* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural volume - actual volume may be affected by upstream water management.

## Colville - Pend Oreille River Basins



\*Based on selected stations

The April – September average forecast for the Kettle River streamflow is 97%, Colville at Kettle Falls is 90% and Priest River near the town of Priest River is 96%. March streamflow was 182% of average on the Pend Oreille River, 198% on the Columbia at the International Boundary and 130% on the Kettle River. April 1 snow cover was 72% of average in the Pend Oreille Basin River Basin and 86% in the Kettle River Basin. Bunchgrass Meadows SNOTEL site had 21.7 inches of snow water on the snow pillow. Normally Bunchgrass would have 30.2 inches on April 1. Precipitation during March was 108% of average, bringing the year-to-date precipitation to 112% of average. Reservoir storage in the basin, including Lake Pend Oreille and Priest Lake was 110% of normal. Average temperatures were 2 degrees above normal for March and near normal for the water year.

# Colville - Pend Oreille River Basins

## Streamflow Forecasts - April 1, 2007

Forecast Point	Forecast Period	Drier Future Conditions Wetter						30-Yr Avg. (1000AF)
		Chance Of Exceeding *		50% (% AVG.)		30% (1000AF)	10% (1000AF)	
		90% (1000AF)	70% (1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)	
PEND OREILLE Lake Inflow (2)	APR-JUL	9150	10400	11200	88	12000	13200	12700
	APR-SEP	9960	11300	12200	88	13100	14400	13900
PRIEST near Priest River (1,2)	APR-JUL	645	725	785	96	845	940	815
	APR-SEP	685	775	835	96	900	1000	870
PEND OREILLE bl Box Canyon (2)	APR-JUL	9620	10700	11500	89	12300	13400	12900
	APR-SEP	10300	11600	12500	89	13400	14700	14100
COLVILLE at Kettle Falls	APR-SEP	78	106	127	90	150	188	141
	APR-JUL	71	96	115	90	135	169	128
KETTLE near Laurier	APR-SEP	1580	1780	1910	97	2040	2240	1970
	APR-JUL	1500	1680	1810	97	1940	2120	1870
COLUMBIA at Birchbank (1,2)	APR-JUL	33600	36500	37800	108	39100	42000	34900
	APR-SEP	41800	45500	47100	108	48700	52400	43500
COLUMBIA at Grand Coulee Dm (1,2)	APR-SEP	57000	62800	65500	102	68200	74000	64000
	APR-JUL	47700	52700	54900	102	57100	62100	53800

### COLVILLE - PEND OREILLE RIVER BASINS Reservoir Storage (1000 AF) - End of March

### COLVILLE - PEND OREILLE RIVER BASINS Watershed Snowpack Analysis - April 1, 2007

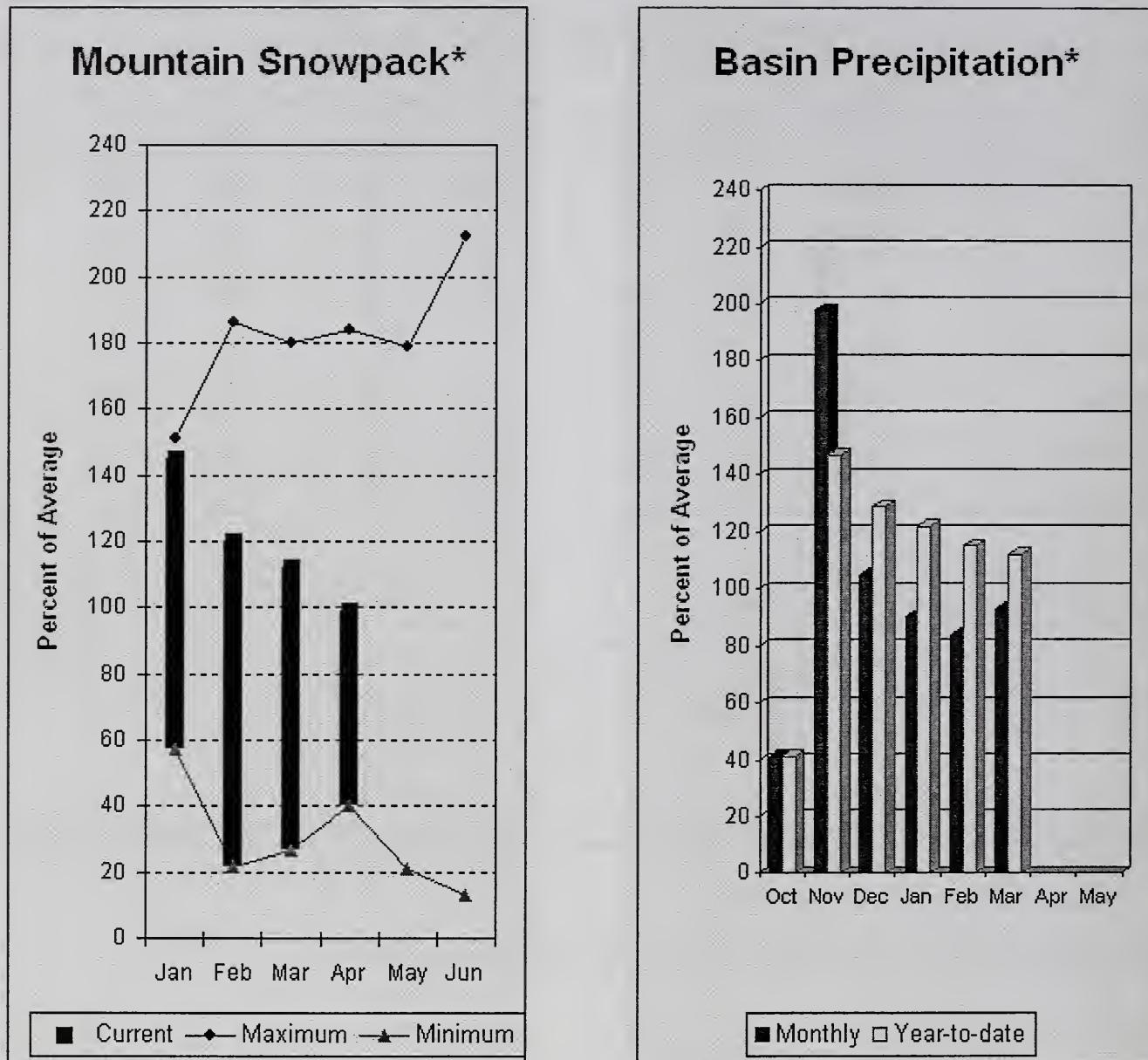
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of Last Yr	Average
		This Year	Last Year	Avg				
ROOSEVELT	NO REPORT				COLVILLE RIVER	1	56	86
PEND OREILLE	1561.3	800.3	862.6	763.6	PEND OREILLE RIVER	11	70	73
PRIEST LAKE	119.3	108.6	54.2	65.5	KETTLE RIVER	7	78	88

\* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural volume - actual volume may be affected by upstream water management.

## Okanogan - Methow River Basins



\*Based on selected stations

Summer runoff average forecast for the Okanogan River is 103%, Similkameen River is 110%, Methow River is 108% and Salmon Creek is 85%. April 1 snow cover on the Okanogan was 97% of average, Omak Creek was 95% and the Methow was 102%. March precipitation in the Okanogan-Methow was 93% of average, with precipitation for the water year at 112% of average. March streamflow for the Methow River was 265% of average, 242% for the Okanogan River and 431% for the Similkameen. Snow-water content at Salmon Meadows SNOTEL was 9.5 inches. Average for this site is 11.1 inches on April 1. Combined storage in the Conconully Reservoirs was 18,000-acre feet, which is 77% of capacity and 103% of the April 1 average. Temperatures were 2 degrees above normal for March and near average for the water year.

# Okanogan - Methow River Basins

## Streamflow Forecasts - April 1, 2007

Forecast Point	Forecast Period	<===== Drier ===== Future Conditions ===== Wetter =====>						30-Yr Avg. (1000AF)	
		Chance Of Exceeding *							
		90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)		
SIMILKAMEEN near Nighthawk (1)	APR-JUL	1200	1370	1490	110	1610	1780	1350	
	APR-SEP	1290	1470	1600	110	1730	1910	1450	
OKANOGAN near Tonasket (1)	APR-JUL	1090	1410	1630	103	1850	2170	1580	
	APR-SEP	1230	1590	1830	103	2070	2430	1770	
OKANOGAN at Malott (1)	APR-JUL	1230	1550	1780	109	2010	2340	1635	
	APR-SEP	1350	1720	1970	108	2230	2590	1826	
Salmon Creek nr Conconully	APR-JUL	8.4	12.8	16.3	87	20	27	18.7	
	APR-SEP	8.3	12.9	16.7	85	21	28	19.7	
TOATS COULEE CREEK nr Loomis	APR-JUL	17.4	24	28	100	32	39	28	
	APR-SEP	19.4	26	30	100	34	41	30	
Beaver Creek blw SF nr Twisp	APR-SEP	6.6	9.2	10.9	90	12.6	15.2	12.1	
	APR-JUL	6.1	8.6	10.3	93	12.0	14.5	11.1	
METHOW RIVER near Pateros	APR-SEP	820	960	1060	108	1170	1330	985	
	APR-JUL	750	880	975	107	1070	1230	910	

### OKANOGAN - METHOW RIVER BASINS Reservoir Storage (1000 AF) - End of March

### OKANOGAN - METHOW RIVER BASINS Watershed Snowpack Analysis - April 1, 2007

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of Last Yr Average
		This Year	Last Year	Avg			
SALMON LAKE	10.5	9.4	7.6	8.4	OKANOGAN RIVER	23	89 98
CONCONULLY RESERVOIR	13.0	8.8	5.0	9.2	OMAK CREEK	3	55 95
					SANPOIL RIVER	0	47 0
					SIMILKAMEEN RIVER	4	127 102
					TOATS COULEE CREEK	1	0 0
					CONCONULLY LAKE	3	59 98
					METHOW RIVER	8	90 102

\* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

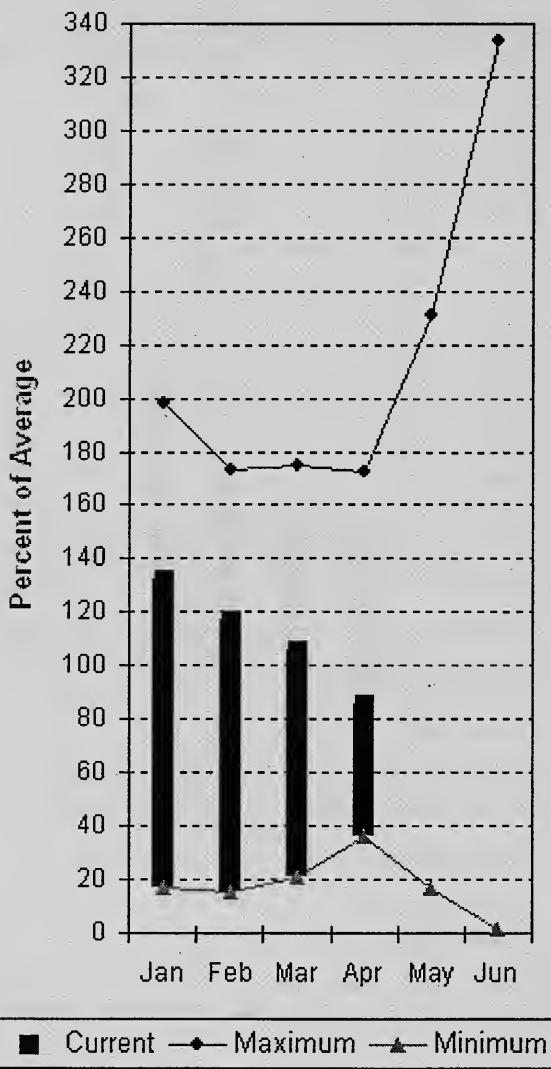
The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

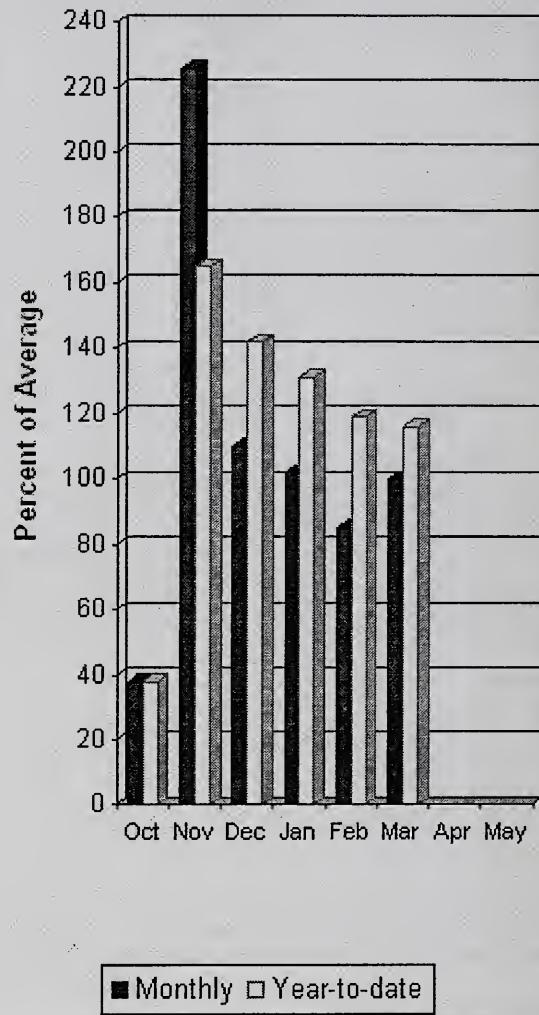
(2) - The value is natural volume - actual volume may be affected by upstream water management.

## Wenatchee - Chelan River Basins

### Mountain Snowpack\*



### Basin Precipitation\*



\*Based on selected stations

Precipitation during March was 100% of average in the basin and 116% for the year-to-date. Runoff for Entiat River is forecast to be 104% of average for the summer. The April-September average forecast for Chelan River is 108%, Wenatchee River at Plain is 103% and Stehekin is 108%. Icicle, Stemilt and Squilchuck creeks are all forecasted to have near average flows as well. March average streamflows on the Chelan River were 260% and on the Wenatchee River 245%. April 1 snowpack in the Wenatchee River Basin was 87% of average; the Chelan, 96%; the Entiat, 86%; Stemilt Creek, 82% and Colockum Creek, 80%. Reservoir storage in Lake Chelan was 394,000-acre feet, 182% of April 1 average and 58% of capacity. Lyman Lake SNOTEL had the most snow water with 66.8 inches of water. This site would normally have 65.4 inches on April 1. Temperatures were 1-2 degrees above normal for March and near average for the water year.

# Wenatchee - Chelan River Basins

## Streamflow Forecasts - April 1, 2007

Forecast Point	Forecast Period	Future Conditions						30-Yr Avg. (1000AF)	
		<===== Drier =====		Chance Of Exceeding *		Wetter =====>			
		90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)		
CHELAN RIVER near Chelan	APR-SEP	1170	1230	1280	108	1330	1400	1190	
	APR-JUL	1000	1070	1120	107	1170	1240	1050	
STEHEKIN near STEHEKIN	APR-SEP	815	860	895	108	930	980	830	
	APR-JUL	675	720	755	108	790	840	700	
ENTIAT RIVER nr Ardenvoir	APR-SEP	215	235	250	104	265	290	240	
	APR-JUL	191	210	225	105	240	260	215	
WENATCHEE at Plain	APR-SEP	1080	1160	1220	103	1280	1370	1180	
	APR-JUL	970	1050	1100	103	1150	1240	1070	
WENATCHEE R. at Peshastin	APR-SEP	1490	1600	1670	103	1750	1860	1630	
	APR-JUL	1350	1440	1510	102	1580	1680	1480	
STEMILT CK nr Wenatchee (miner's in)	MAY-SEP	121	144	160	116	176	199	138	
ICICLE CREEK near Leavenworth	APR-SEP	285	310	330	97	350	375	340	
	APR-JUL	265	290	305	98	320	350	310	
COLUMBIA R. bl Rock Island Dam (2)	APR-SEP	65600	70000	72900	105	75800	80200	69500	
	APR-JUL	53700	58400	61600	104	64800	69500	59000	

### WENATCHEE - CHELAN RIVER BASINS Reservoir Storage (1000 AF) - End of March

### WENATCHEE - CHELAN RIVER BASINS Watershed Snowpack Analysis - April 1, 2007

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of Average	
		This Year	Last Year	Avg			Last Yr	Average
CHELAN LAKE	676.1	393.6	137.9	216.3	CHELAN LAKE BASIN	7	92	96
					ENTIAT RIVER	1	68	86
					WENATCHEE RIVER	10	79	86
					STEMILT CREEK	3	66	82
					COLOCKUM CREEK	2	57	80

\* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

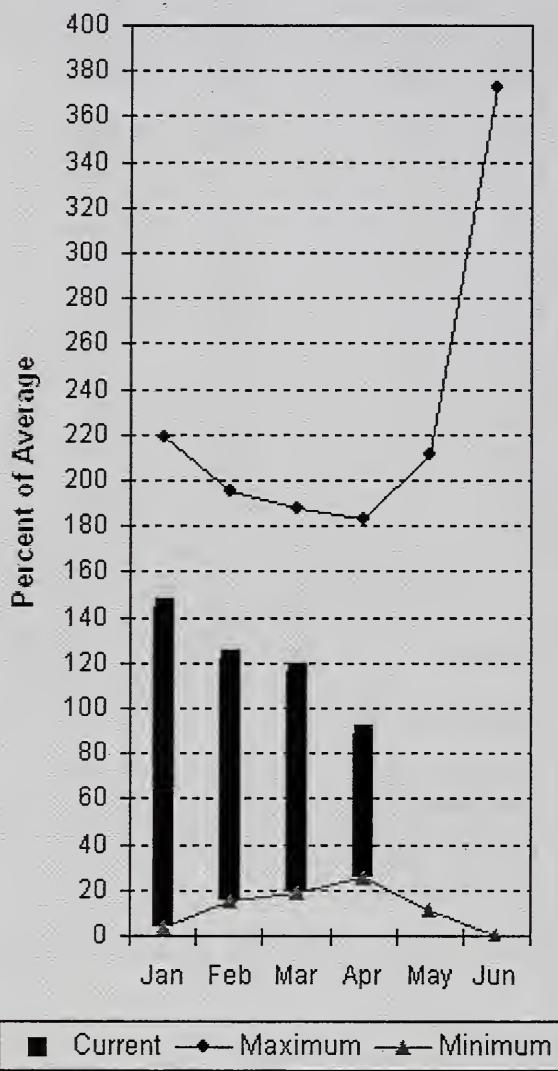
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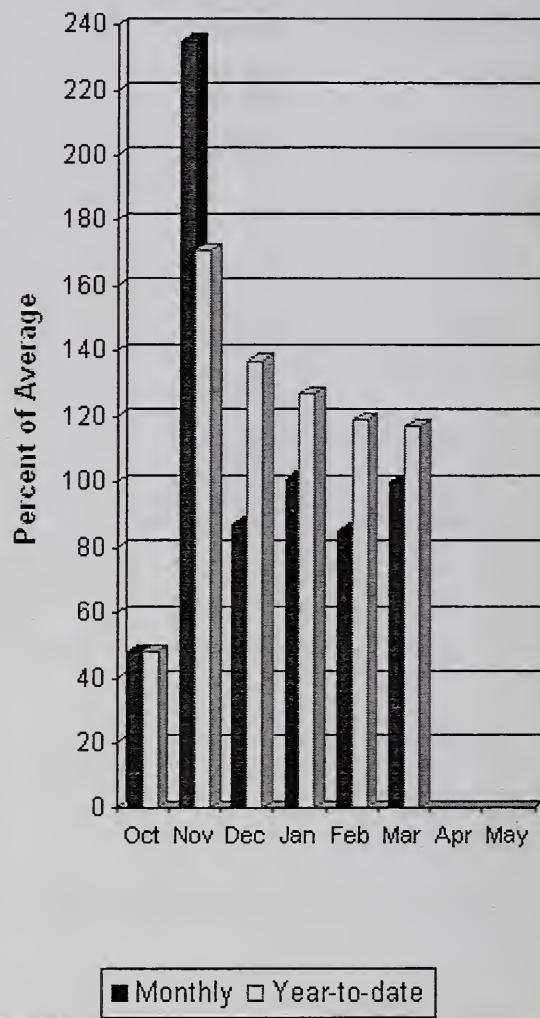
(2) - The value is natural volume - actual volume may be affected by upstream water management.

## Upper Yakima River Basin

### Mountain Snowpack\*



### Basin Precipitation\*



\*Based on selected stations

April 1 reservoir storage for the Upper Yakima reservoirs was 703,000-acre feet, 127% of average. Forecasts for the Yakima River at Cle Elum are 101% of average and the Teanaway River near Cle Elum is at 103%. Lake inflows are all forecasted to be near average this summer as well. March streamflows within the basin were Yakima near Cle Elum at 229% and Cle Elum River near Roslyn at 259%. April 1 snowpack was 88% based upon 11 snow course and SNOTEL readings within the Upper Yakima Basin. Precipitation was 100% of average for March and 117% year-to-date for water. Volume forecasts for the Yakima Basin are for natural flow. As such, they may differ from the U.S. Bureau of Reclamation's forecast for the total water supply available, which includes irrigation return flow.

# Upper Yakima River Basin

## Streamflow Forecasts - April 1, 2007

Forecast Point	Forecast Period	Future Conditions						30-Yr Avg. (1000AF)	
		<===== Drier =====		Chance Of Exceeding *		Wetter =====>			
		90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)		
KEECHELUS LAKE INFLOW	APR-JUL	106	115	122	99	129	139	123	
	APR-SEP	115	126	133	99	140	152	134	
KACHESS LAKE INFLOW	APR-JUL	96	105	111	99	118	127	112	
	APR-SEP	101	111	118	99	125	136	119	
CLE ELUM LAKE INFLOW	APR-JUL	345	380	410	100	440	485	410	
	APR-SEP	375	420	450	100	480	530	450	
YAKIMA at Cle Elum	APR-JUL	710	775	820	101	870	940	810	
	APR-SEP	770	845	900	101	955	1040	890	
TEANAWAY near Cle Elum	APR-JUL	107	125	138	103	152	173	134	
	APR-SEP	110	129	142	103	156	178	138	

## UPPER YAKIMA RIVER BASIN Reservoir Storage (1000 AF) - End of March

## UPPER YAKIMA RIVER BASIN Watershed Snowpack Analysis - April 1, 2007

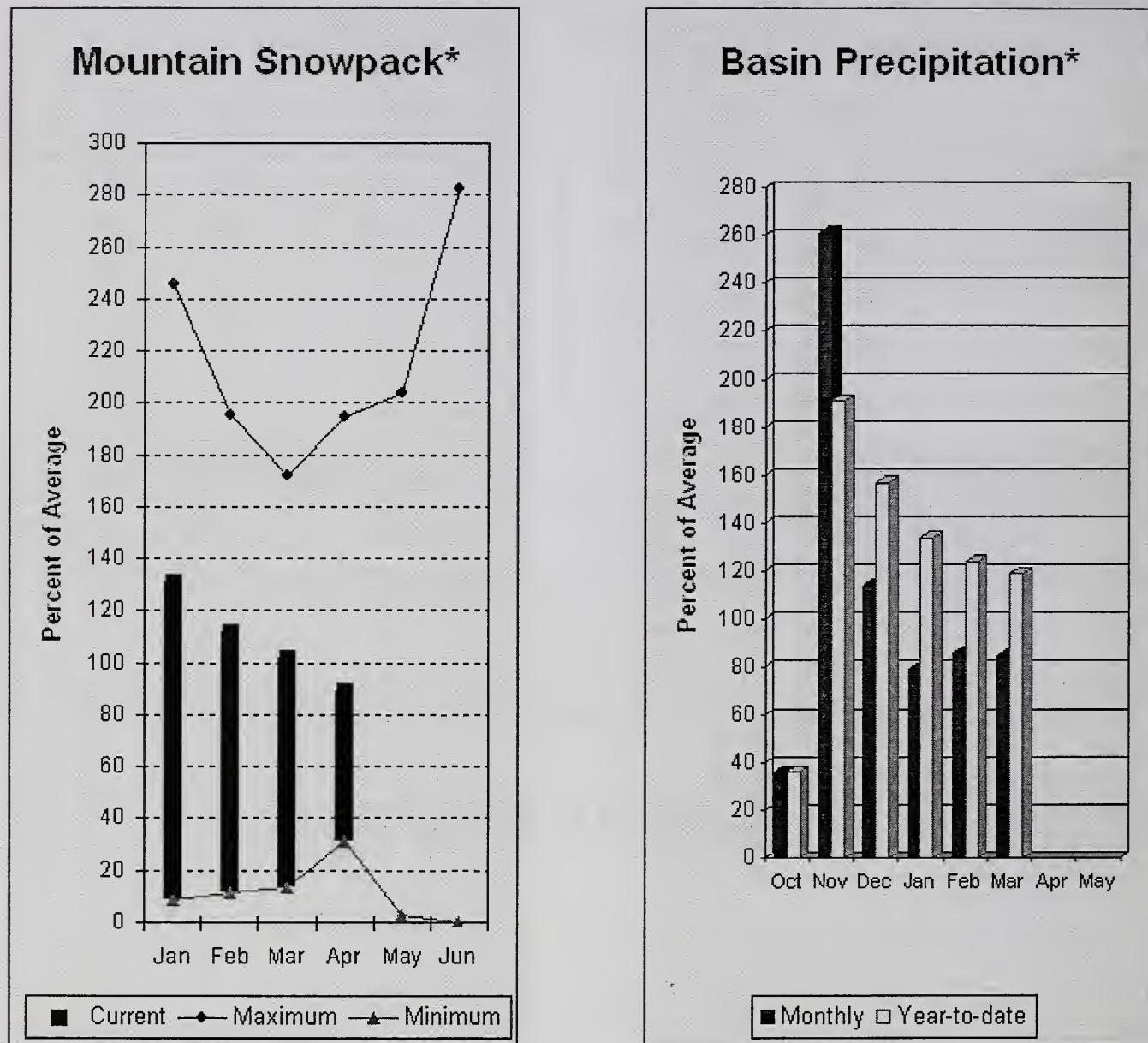
Reservoir	Usable Capacity	*** Usable Storage ***	Watershed	Number of Data Sites	This Year as % of Last Yr	Average
		This Year				
		Last Year				
KEECHELUS	157.8	133.6	68.6	114.1	UPPER YAKIMA RIVER	8
KACHESS	239.0	201.7	91.8	169.4		73
CLE ELUM	436.9	367.5	123.5	270.1		85

\* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural volume - actual volume may be affected by upstream water management.

## Lower Yakima River Basin



\*Based on selected stations

March average streamflows within the basin were: Yakima River near Parker, 225% and the Naches River near Naches, 260%. April 1 reservoir storage for Bumping and Rimrock reservoirs was 197,000 acre feet, 130% of average. Forecast average flows for Yakima River near Parker are 97%; American River near Nile, 102%; Ahtanum Creek, 75%; and Klickitat River near Glenwood, 80%. April 1 snowpack was 89% based upon 8 snow course and SNOTEL readings within the Lower Yakima Basin and Ahtanum Creek reported in at 74% of average. Precipitation was 85% of average for March and 119% year-to-date for water. Temperatures were near normal for March and near average for the water year. Volume forecasts for Yakima Basin are for natural flow. As such, they April differ from the U.S. Bureau of Reclamation's forecast for the total water supply available, which includes irrigation return flow.

# Lower Yakima River Basin

## Streamflow Forecasts - April 1, 2007

Forecast Point	Forecast Period	<===== Drier ===== Future Conditions ===== Wetter =====>				30-Yr Avg. (1000AF)
		Chance Of Exceeding *		50% (1000AF)	(% AVG.)	
		90% (1000AF)	70% (1000AF)	30% (1000AF)	10% (1000AF)	
BUMPING LAKE INFLOW	APR-SEP	121	131	137	102	134
	APR-JUL	111	119	125	102	123
AMERICAN RIVER near Nile	APR-SEP	93	109	120	102	118
	APR-JUL	84	99	110	102	108
RIMROCK LAKE INFLOW	APR-SEP	215	235	245	102	240
	APR-JUL	181	195	205	103	200
NACHES near Naches	APR-SEP	685	750	795	102	780
	APR-JUL	635	695	735	102	720
AHTANUM CREEK at Union Gap	APR-SEP	16.0	21	24	75	32
	APR-JUL	15.0	19.5	23	77	30
YAKIMA near Parker	APR-SEP	1770	1860	1920	97	1990
	APR-JUL	1600	1680	1730	96	1800
KLICKITAT near Glenwood	APR-JUN	85	94	100	78	129
	APR-SEP	108	121	130	80	163

### LOWER YAKIMA RIVER BASIN Reservoir Storage (1000 AF) - End of March

### LOWER YAKIMA RIVER BASIN Watershed Snowpack Analysis - April 1, 2007

Reservoir	Usable Capacity	*** Usable Storage ***	Watershed	Number of Data Sites	This Year as % of Last Yr	This Year as % of Average
	This Year	Last Year	Avg			
BUMPING LAKE	33.7	19.8	19.4	13.1		
RIMROCK	198.0	176.9	131.5	138.5		

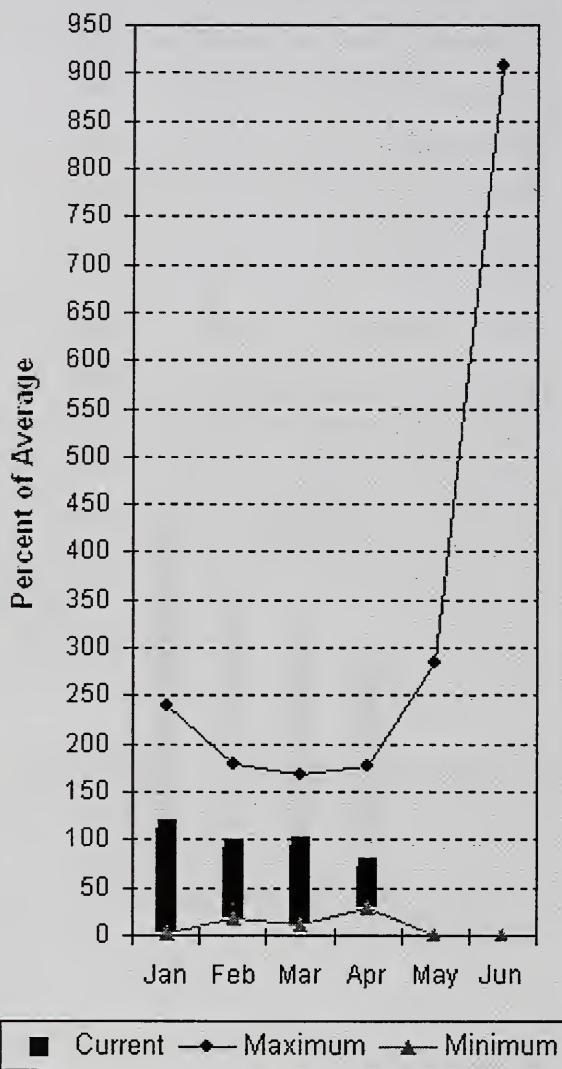
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The average is computed for the 1971-2000 base period.

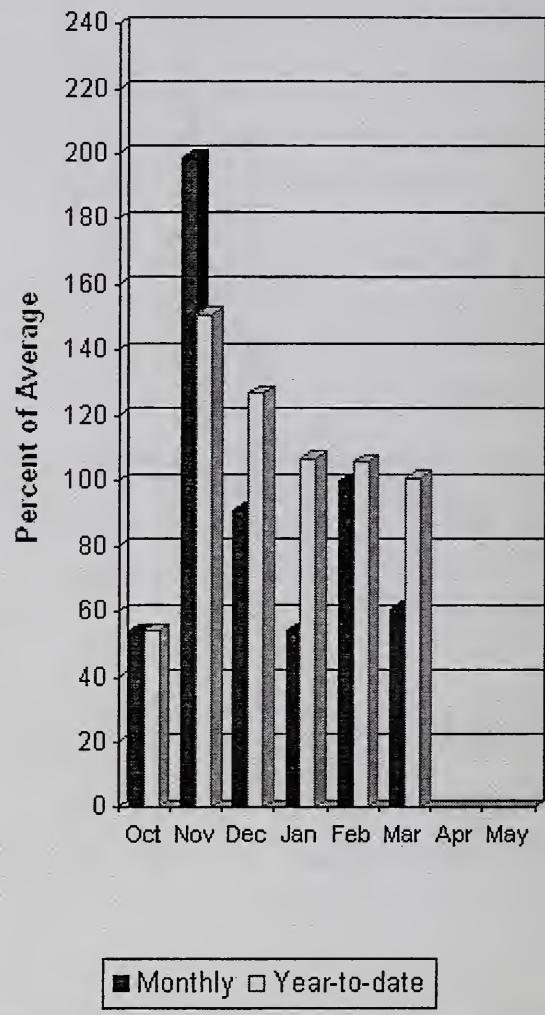
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# Walla Walla River Basin

## Mountain Snowpack\*



## Basin Precipitation\*



\*Based on selected stations

March precipitation was 61% of average, maintaining the year-to-date precipitation at 101% of average. Snowpack in the basin was 71% of average. Streamflow forecasts are 82% of average for Mill Creek at Kooskooskie and 88% for the SF Walla Walla near Milton-Freewater. March streamflow was 166% of average for the Walla Walla River. Average temperatures were 1-2 degrees above normal for March and for the water year.

# Walla Walla River Basin

## Streamflow Forecasts - April 1, 2007

Forecast Point	Forecast Period	<===== Drier ===== Future Conditions ===== Wetter =====>						30-Yr Avg. (1000AF)	
		Chance Of Exceeding *		50% (1000AF) · (% AVG.)		30% (1000AF) · 10% (1000AF)			
		90% (1000AF)	70% (1000AF)						
SF WALLA WALLA near Milton-Freewater	APR-JUL	39	44	48	89	52	58	54	
	APR-SEP	48	55	59	88	64	71	67	
MILL CREEK at Kooskooskie	APR-JUL	14.7	17.7	20	83	22	26	24	
	APR-SEP	17.2	21	23	82	26	30	28	

## WALLA WALLA RIVER BASIN Reservoir Storage (1000 AF) - End of March

## WALLA WALLA RIVER BASIN Watershed Snowpack Analysis - April 1, 2007

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of Last Yr	Average
		This Year	Last Year	Avg				
					WALLA WALLA RIVER	2	68	71

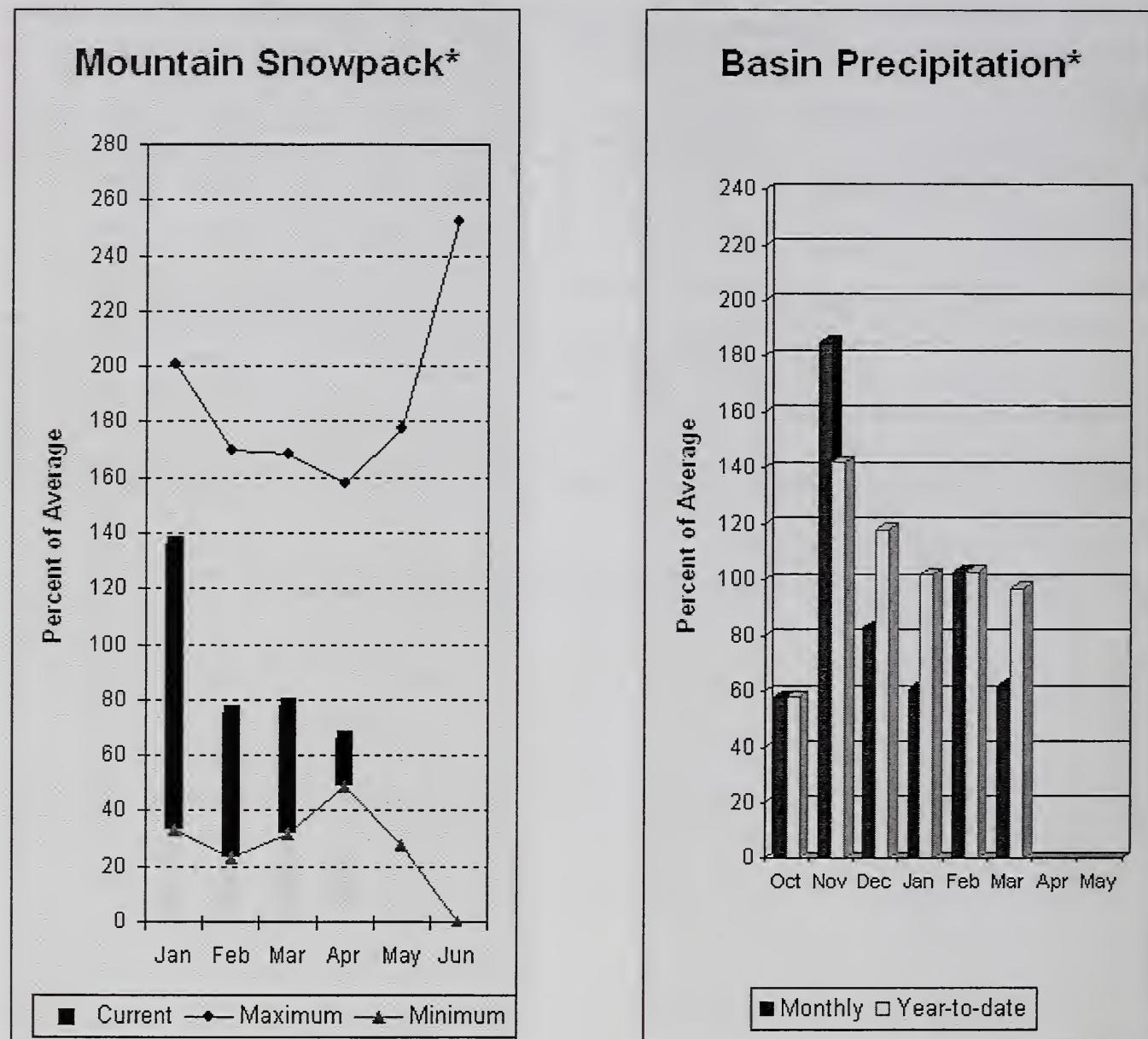
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The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

(2) - The value is natural volume - actual volume may be affected by upstream water management.

## Lower Snake River Basin



\*Based on selected stations

The April - September forecast is for 83% for Clearwater River at Spalding. The Snake and Grande Ronde rivers can both expect summer flows to be about 70% of normal. March precipitation was 62% of average, bringing the year-to-date precipitation to 97% of average. April 1 snowpack readings averaged 66% of normal. March streamflow was 83% of average for Snake River below Lower Granite Dam and 93% for Grande Ronde River near Troy. Average temperatures were 2-3 degrees above normal for March and 1-2 degrees above normal for the water year.

# Lower Snake River Basin

## Streamflow Forecasts - April 1, 2007

Forecast Point	Forecast Period	<===== Drier ===== Future Conditions ===== Wetter =====>						30-Yr Avg. (1000AF)
		Chance Of Exceeding *		50% (1000AF) (% AVG.)		30% (1000AF) 10% (1000AF)		
		90% (1000AF)	70% (1000AF)					
GRANDE RONDE at Troy (1)	APR-JUL	660	790	885	70	985	1140	1270
	APR-SEP	720	855	955	70	1060	1230	1370
CLEARWATER at Spalding (1,2)	APR-JUL	6070	6120	6150	83	6180	6230	7430
	APR-SEP	6430	6480	6510	83	6540	6590	7850
SNAKE blw Lower Granite Dam (1,2)	APR-JUL	10200	13600	15100	70	16600	20000	21600
	APR-SEP	11400	15200	16900	70	18600	22400	24100

### LOWER SNAKE RIVER BASIN

Reservoir Storage (1000 AF) - End of March

### LOWER SNAKE RIVER BASIN

Watershed Snowpack Analysis - April 1, 2007

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of Last Yr	Average
		This Year	Last Year	Avg				
DWORSHAK	3468.0	2803.4	2401.9	2205.4	LOWER SNAKE, GRANDE RONDE	17	64	66

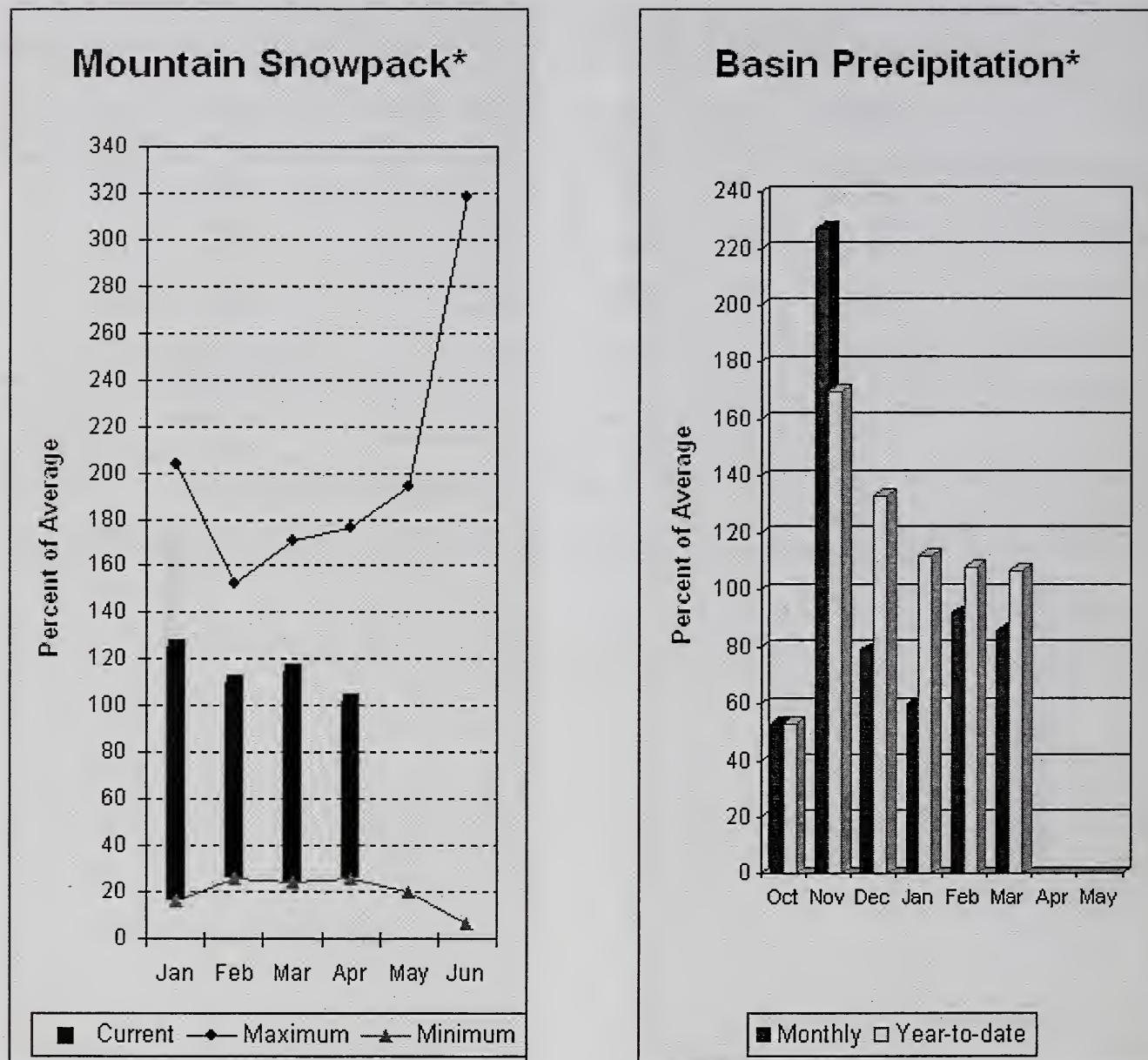
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The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

(2) - The value is natural volume - actual volume may be affected by upstream water management.

## Cowlitz - Lewis River Basins



\*Based on selected stations

Forecasts for April – September streamflows within the basin are Lewis River at Ariel, 102% and Cowlitz River at Castle Rock, 96% of average. The Columbia at The Dalles is forecasted to have 92% of average flows this summer. March average streamflow for Cowlitz River was 175% and 137% for Lewis River. The Columbia River at The Dalles was 126% of average. March precipitation was 86% of average and the water-year average was 107%. April 1 snow cover for Cowlitz River was 95%, and Lewis River was 108% of average. Average temperatures were 1-2 degrees above normal during March and 1 degree below normal for the water year.

# Cowlitz - Lewis River Basins

## Streamflow Forecasts - April 1, 2007

Forecast Point	Forecast Period	Future Conditions						30-Yr Avg. (1000AF)
		<===== Drier =====		Chance Of Exceeding *			Wetter =====>	
		90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
LEWIS at Ariel (2)	APR-JUL	763	928	1040	101	1152	1317	1031
	APR-SEP	916	1085	1200	102	1315	1484	1176
COWLITZ R. bl Mayfield Dam (2)	APR-SEP	988	1507	1860	97	2213	2732	1922
	APR-JUL	756	1276	1630	97	1984	2504	1689
COWLITZ R. at Castle Rock (2)	APR-SEP	1322	2041	2530	96	3019	3738	2639
	APR-JUL	1363	1861	2200	96	2539	3037	2295
KLICKITAT near Glenwood	APR-JUN	85	94	100	78	106	115	129
	APR-SEP	108	121	130	80	139	152	163
COLUMBIA R. at The Dalles (2)	APR-SEP	79900	86200	90400	92	94600	101000	98600
	APR-JUL	66200	72900	77400	92	81900	88600	84600

### COWLITZ - LEWIS RIVER BASINS

Reservoir Storage (1000 AF) - End of March

### COWLITZ - LEWIS RIVER BASINS

Watershed Snowpack Analysis - April 1, 2007

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of Last Yr	Average
		This Year	Last Year	Avg				
MOSSYROCK	0.0	1472.5	1142.1	---	LEWIS RIVER	5	68	108
SWIFT	0.0	738.6	553.3	---	COWLITZ RIVER	6	79	96
YALE	0.0	365.0	355.9	---				
MERWIN	0.0	384.1	408.4	---				

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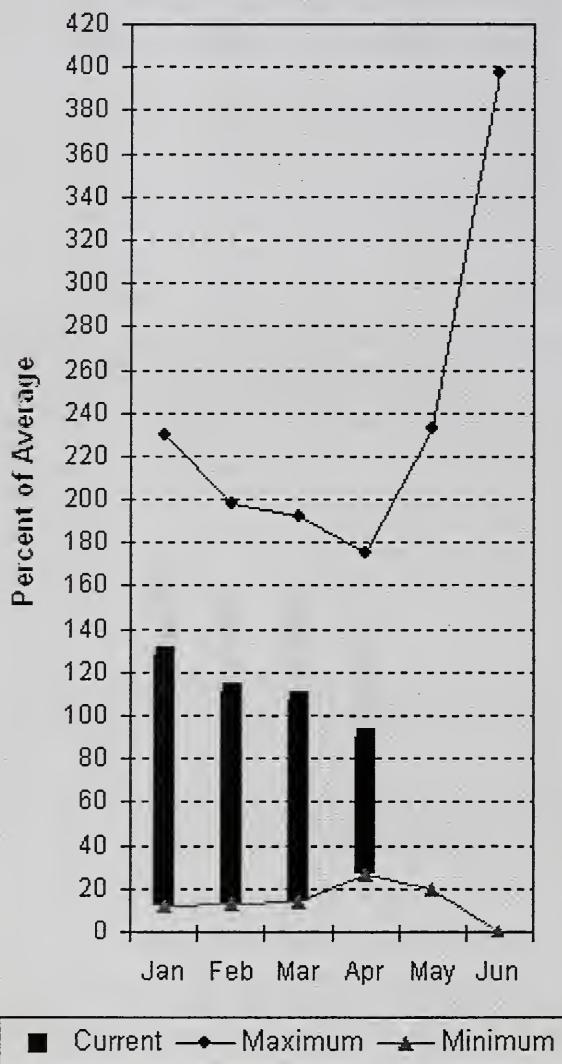
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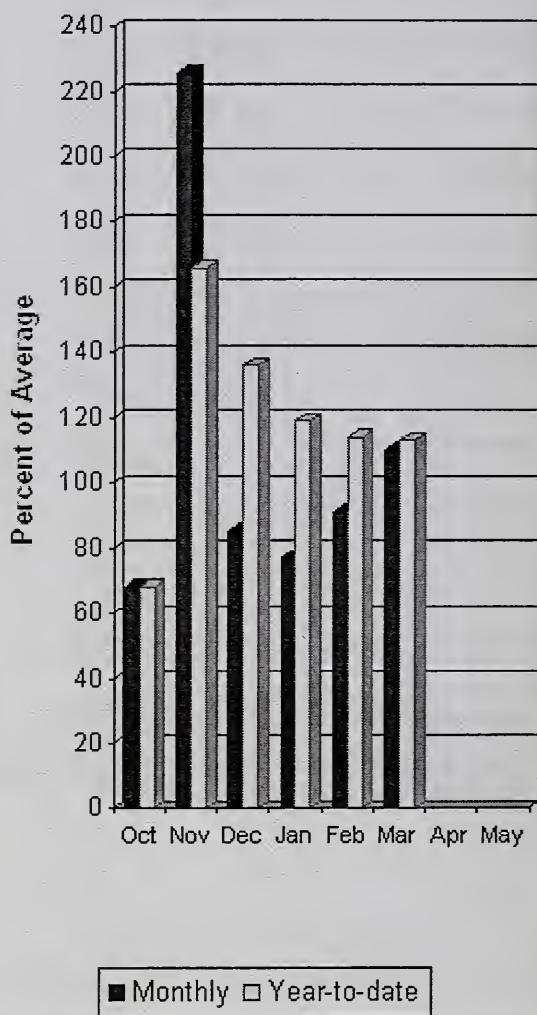
(2) - The value is natural volume - actual volume may be affected by upstream water management.

## White - Green River Basins

### Mountain Snowpack\*



### Basin Precipitation\*



\*Based on selected stations

Summer runoff is forecast to be 95% of normal for the Green River below Howard Hanson Dam and 94% for the White River near Buckley. April 1 snowpack was 92% of average in the White River, 95% in the Puyallup River and 82% in Green River. Water content on April 1 at Corral Pass SNOTEL, at an elevation of 6,000 feet, was 33.3 inches. This site has an April 1 average of 34.9 inches. March precipitation was 110% of average, bringing the water year-to-date to 113% of average for the basins. Average temperatures in the area were 1 degree above normal for March and for the water-year.

# White - Green - Puyallup River Basins

## Streamflow Forecasts - April 1, 2007

Forecast Point	Forecast Period	<===== Drier ===== Future Conditions ===== Wetter =====>						30-Yr Avg. (1000AF)	
		Chance Of Exceeding *							
		90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)		
WHITE near Buckley (1,2)	APR-JUL	334	386	410	93	434	486	440	
	APR-SEP	412	473	500	94	527	588	534	
GREEN R below Howard Hansen (1,2)	APR-JUL	178	210	225	93	240	272	243	
	APR-SEP	202	239	255	95	271	308	268	

### WHITE - GREEN - PUYALLUP RIVER BASINS Reservoir Storage (1000 AF) - End of March

### WHITE - GREEN - PUYALLUP RIVER BASINS Watershed Snowpack Analysis - April 1, 2007

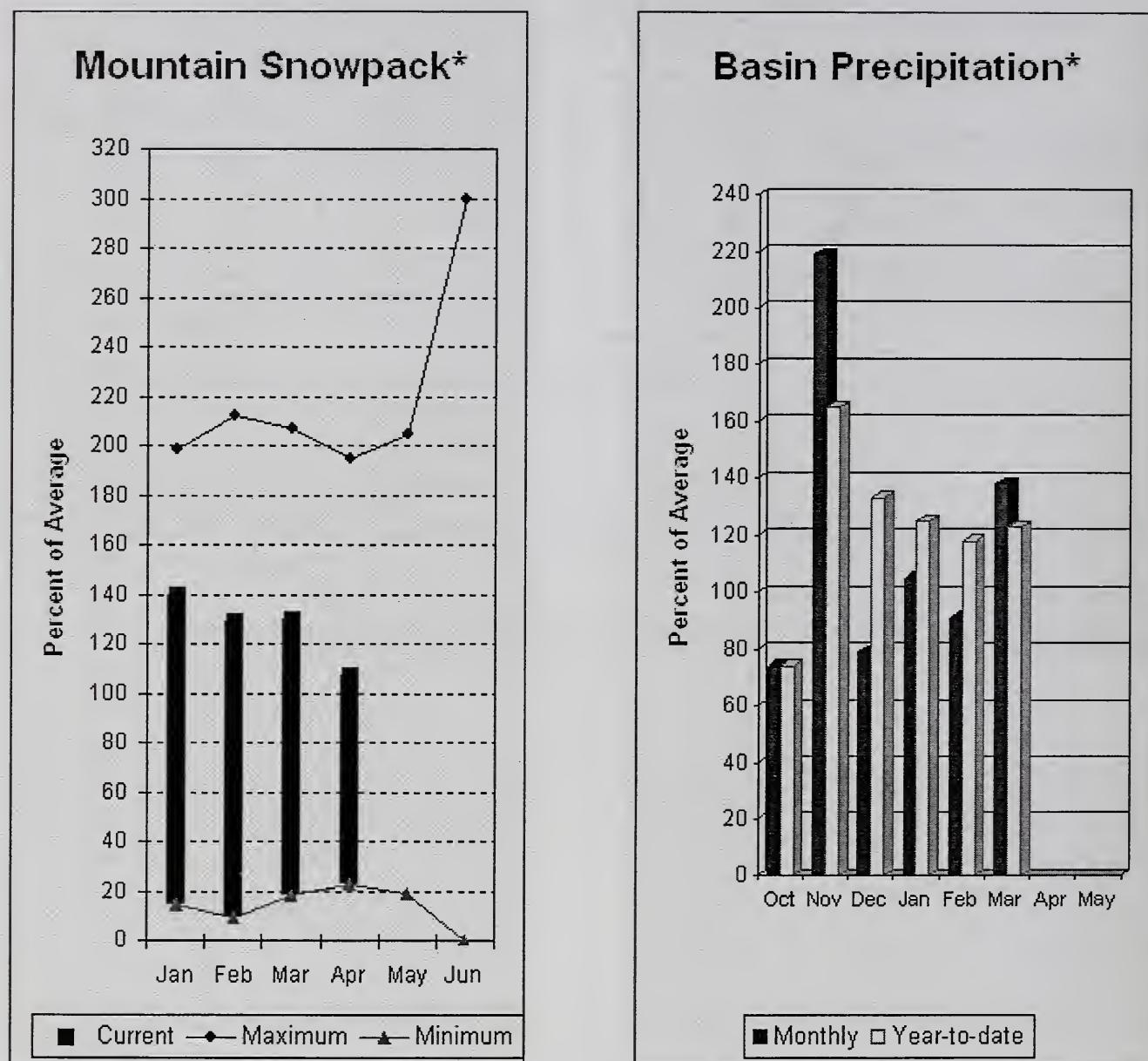
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					WHITE RIVER	2	78	92
					GREEN RIVER	7	70	82
					PUYALLUP RIVER	3	78	95

\* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural volume - actual volume may be affected by upstream water management.

## Central Puget Sound River Basins



\*Based on selected stations

Forecast for spring and summer flows are: 98% for Cedar River near Cedar Falls; 96% for Rex River; 112% for South Fork of the Tolt River; and 104% for Cedar River at Cedar Falls. Basin-wide precipitation for March was 138% of average, bringing water-year-to-date to 123% of average. April 1 average snow cover in Cedar River Basin was 98%, Tolt River Basin was 114%, Snoqualmie River Basin was 106%, and Skykomish River Basin was 110%. Olallie Meadows SNOTEL site, at 3960 feet, had 58.5 inches of water content. Average April 1 water content is 55.9 inches at Olallie Meadows. Temperatures were near average for March and 1-3 degrees above normal for the water-year.

# Central Puget Sound River Basins

## Streamflow Forecasts - April 1, 2007

Forecast Point	Forecast Period	Future Conditions						30-Yr Avg. (1000AF)
		<===== Drier =====		Chance Of Exceeding *			===== Wetter =====>	
		90% (1000AF)	70% (1000AF)	(1000AF)	50% (% AVG.)	(1000AF)	10% (1000AF)	
CEDAR near Cedar Falls	APR-JUL	56	64	70	96	76	84	73
	APR-SEP	63	72	78	98	84	94	80
REX near Cedar Falls	APR-JUL	17.3	21	24	96	27	31	25
	APR-SEP	19.7	24	27	96	30	34	28
CEDAR RIVER at Cedar Falls	APR-JUL	55	67	76	103	85	97	74
	APR-SEP	57	68	76	104	84	95	73
SOUTH FORK TOLT near Index	APR-JUL	13.6	15.0	16.0	109	17.0	18.4	14.7
	APR-SEP	15.9	17.8	19.0	112	20	22	16.9

## CENTRAL PUGET SOUND RIVER BASINS Reservoir Storage (1000 AF) - End of March

## CENTRAL PUGET SOUND RIVER BASINS Watershed Snowpack Analysis - April 1, 2007

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					CEDAR RIVER	6	69	98
					TOLT RIVER	3	85	114
					SNOQUALMIE RIVER	5	85	106
					SKYKOMISH RIVER	3	90	110

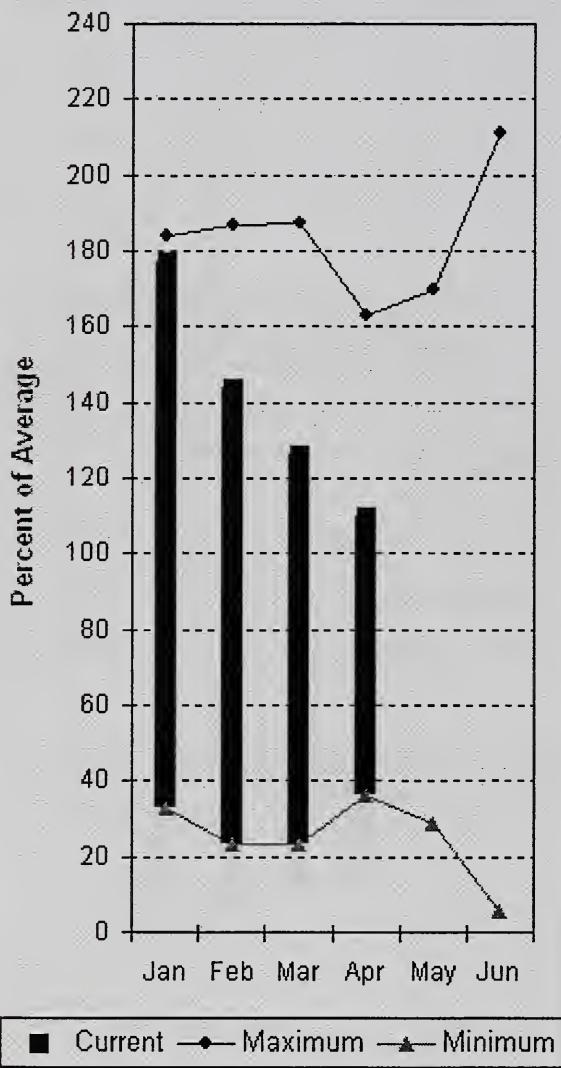
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The average is computed for the 1971-2000 base period.

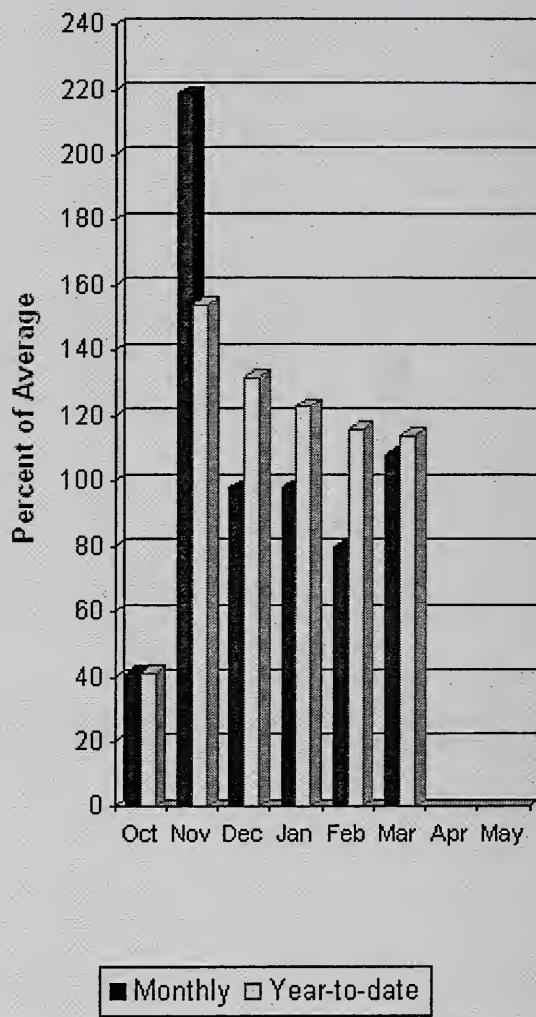
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural volume - actual volume may be affected by upstream water management.

## North Puget Sound River Basins

### Mountain Snowpack\*



### Basin Precipitation\*



\*Based on selected stations

Forecast for Skagit River streamflow at Newhalem is 103% of average for the spring and summer period. March streamflow in Skagit River was 230% of average. Other forecast points included Baker River at 92% and Thunder Creek at 102% of average. Basin-wide precipitation for March was 108% of average, bringing water-year-to-date to 114% of average. April 1 average snow cover in Skagit River Basin was 107%, and Nooksack River Basin was 117%. Baker River Basin aerial snow surveys reported 102% normal snowpack. Rainy Pass SNOTEL, at 4,780 feet, had 38.8 inches of water content. Average April 1 water content is 44 inches at Rainy Pass. April 1 Skagit River reservoir storage was 124% of average and 64% of capacity. Average temperatures for the basin were 1-2 degrees above normal for the month and near average for the water year.

# North Puget Sound River Basins

## Streamflow Forecasts - April 1, 2007

Forecast Point	Forecast Period	Future Conditions						30-Yr Avg. (1000AF)	
		<===== Drier =====		Chance Of Exceeding *			Wetter =====>		
		90% (1000AF)	70% (1000AF)	(1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)		
THUNDER CREEK near Newhalem	APR-JUL	213	229	240	103	251	267	234	
	APR-SEP	311	328	340	102	352	369	333	
SKAGIT at Newhalem (2)	APR-JUL	1714	1819	1890	101	1961	2066	1864	
	APR-SEP	2065	2190	2275	103	2360	2485	2217	
BAKER RIVER near Concrete	APR-JUL	675	734	775	94	816	875	828	
	APR-SEP	842	915	965	92	1015	1088	1050	

### NORTH PUGET SOUND RIVER BASINS Reservoir Storage (1000 AF) - End of March

### NORTH PUGET SOUND RIVER BASINS Watershed Snowpack Analysis - April 1, 2007

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
ROSS	1404.1	876.5	480.2	693.0	SKAGIT RIVER	17	109	107
DIABLO RESERVOIR	90.6	86.3	85.5	86.2	BAKER RIVER	1	105	129
					NOOKSACK RIVER	2	105	117

\* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

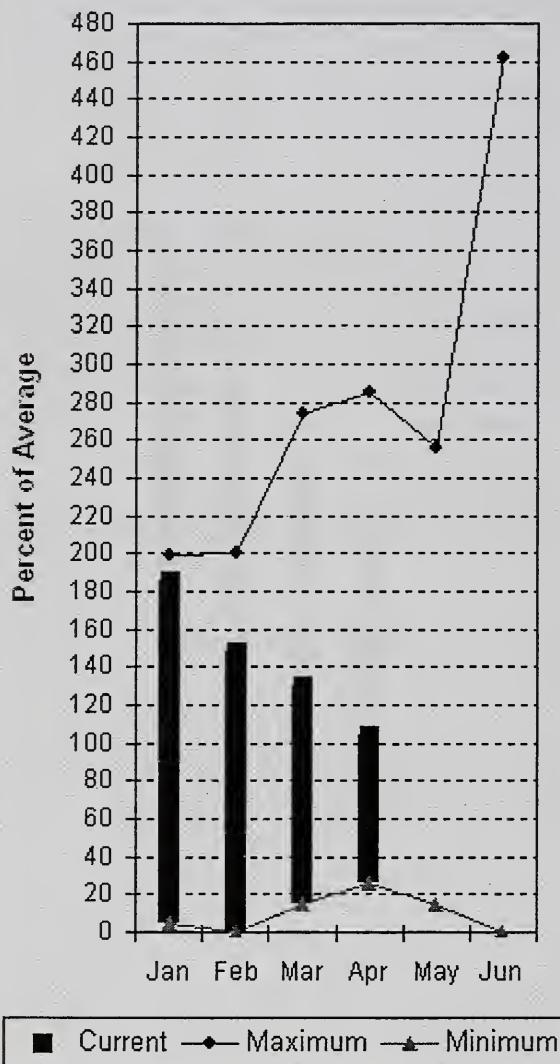
The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

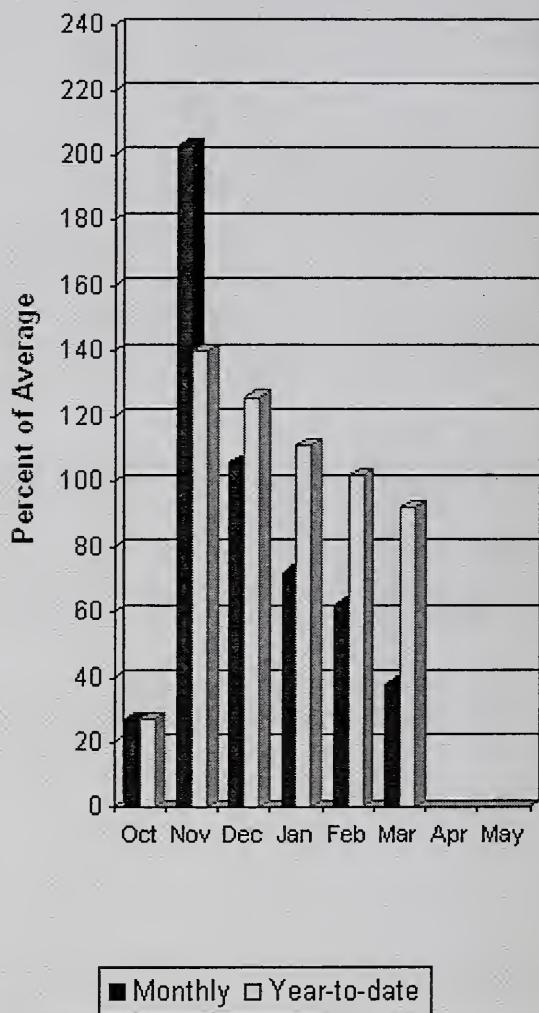
(2) - The value is natural volume - actual volume may be affected by upstream water management.

## Olympic Peninsula River Basins

### Mountain Snowpack\*



### Basin Precipitation\*



\*Based on selected stations

Forecasted average runoff for streamflow for both the Dungeness and Elwha rivers is 99%. March runoff in the Dungeness River was 105% of normal. Big Quilcene and Wynoochee rivers should expect near average runoff this summer also. March precipitation was only 38% of average. Precipitation has accumulated at 92% of average for the water year. March precipitation at Quillayute was 2.85 inches. The thirty-year average for March is 10.98 inches. Olympic Peninsula snowpack averaged 104% of normal on April 1. Temperatures were 1-2 degrees above average for March and 1 degree above average for the water year.

# Olympic Peninsula River Basins

## Streamflow Forecasts - April 1, 2007

Forecast Point	Forecast Period	<===== Drier ===== Future Conditions ===== Wetter =====>						30-Yr Avg. (1000AF)	
		Chance Of Exceeding *			30% (1000AF) 10% (1000AF)				
		90% (1000AF)	70% (1000AF)	50% (1000AF) (% AVG.)	30% (1000AF)	10% (1000AF)			
DUNGENESS near Sequim	APR-SEP	132	143	150	99	157	168	152	
	APR-JUL	110	119	125	101	131	140	124	
ELWHA near Port Angeles	APR-SEP	439	475	500	99	525	561	503	
	APR-JUL	367	399	420	100	441	473	419	

## OLYMPIC PENINSULA RIVER BASINS Reservoir Storage (1000 AF) - End of March

## OLYMPIC PENINSULA RIVER BASINS Watershed Snowpack Analysis - April 1, 2007

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of Last Yr Average
		This Year	Last Year	Avg			
					OLYMPIC PENINSULA	5	80 91

\* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- (2) - The value is natural volume - actual volume may be affected by upstream water management.



*Issued by*

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## The Following Organizations Cooperate with the Natural Resources Conservation Service in Snow Survey Work\*:

### **Canada**

Ministry of Sustainable Resources  
Snow Survey, River Forecast Centre, Victoria, British Columbia

### **State**

Washington State Department of Ecology

Washington State Department of Natural Resources

### **Federal**

Department of the Army

    Corps of Engineers

U.S. Department of Agriculture

    Forest Service

U.S. Department of Commerce

    NOAA, National Weather Service

U.S. Department of Interior

    Bonneville Power Administration

    Bureau of Reclamation

    Geological Survey

    National Park Service

    Bureau of Indian Affairs

    Recourse Conservation & Development Councils

### **Local**

City of Tacoma

City of Seattle

Chelan County P.U.D.

Pacific Power and Light Company

Puget Sound Power and Light Company

Washington Water Power Company

Snohomish County P.U.D.

Colville Confederated Tribes

Spokane County

Yakama Indian Nation

Whatcom County

Pierce County

Kalispe Tribe of Indians

Spokane Indian Tribe

Jamestown S'klallum Tribe

Okanogan Irrigation District

Wenatchee Heights Irrigation District

Newman Lake Homeowners Association

Whitestone Reclamation District

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# Washington Water Supply Outlook Report

Natural Resources Conservation Service  
Spokane, WA

